WEST MARKETING ISSUE
Pages 9-20

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INDUSTRY WEEK

Pacific Agro Co. Begins Construction Of New Fertilizer-Insecticide Plant

SEATTLE—Pacific Agro Co., Seattle, has announced that construction is now under way on its new fertilizer-insecticide plant at Sunnyside, Wash. Robert Allard, general manager, said that the plant will be completed in time to serve eastern Washington growers with Agro insecticides, both dry and liquid, during the 1957 summer season.

In addition to Agro insecticide products, the new plant will produce Agro specialty fertilizers. Lee Fryer, manager of the plant food division, said the fertilizer plant will be in operation by midsummer and will be shipping Agro fertilizers to eastern Washington growers for late summer and fall application.

The new plant will be operated by Link Distributing Co., Grandview, Wash., under the direction of Ray Whitcomb and Wes Farwell.

Shell Chemical Brings New Urea Plant in California Into Production

VENTURA, CAL.—Shell Chemical Corp. has brought its new urea plant here into production. The plant produces the high analysis nitrogen fertilizer for Pacific Coast markets. Shell said the plant was the only one of its type west of the Rocky Mountains.

Shell built the new plant adjacent to its Ventura ammonia plant. The company also has ammonia manufacturing facilities at Pittsburg, Cal., and its line of dry fertilizers includes ammonium sulphate, di-ammonium phosphate, ammonium phosphate sulphate, and triple superphosphate.

Stauffer Chemical Co. Installs Unit at Omaha to Produce Granular Insecticides

OMAHA—Stauffer Chemical Co. has completed installation of a new unit to produce a broad range of granular insecticides. The new facility will produce, according to Porter Williams, area sales manager for Stauffer, granular formulations of DDT, aldrin and heptachlor.

The decision to manufacture the granular insecticides at Omaha stems from research conducted by the Corn Borer Research Laboratory, and work done at other state colleges, which indicate that DDT granular gives improved control of the corn borer, Stauffer said. As a result of this work, recommendations have been made that farmers use 12 to 20 lb. per acre of 5% DDT granular for corn borer control.

Initially, Stauffer is manufacturing 5% DDT granular, 20% and 25% aldrin and 20% and 25% heptachlor. The aldrin and heptachlor formulations are used for soil insects. The Omaha plant will supply the entire Midwest area.

Standard Oil of California Organizes Unit to Consolidate Chemical Activities

SAN FRANCISCO—Establishment of California Chemical Co. to consolidate the chemical activities of Standard Oil Company of California was announced April 29 by R. G. Follis, Standard's board chairman.

The new organization will coordinate activities of two presently existing subsidiaries, California Spray-Chemical Corp., manufacturer and marketer of agricultural chemicals, and Oronite Chemical Co., which functions in the field of industrial chemicals. California Spray-Chemical and Oronite Chemical will become subsidiaries of California Chemical Co.

Additionally, California Chemical will engage in long-range planning and guide the anticipated future growth of Standard of California's participation in the chemical industry.

Oronite and Calspray will continue to conduct their business in their fields on an autonomous basis under their existing managements.

G. L. Parkhurst has been named chairman of the board and chief executive officer of California Chemical Co. P. L. Fahrney has been named president. Both are vice presidents of Standard Oil Company of California.

Named vice presidents of the new company were T. G. Hughes, president of Oronite, and A. W. Mohr, president of Calspray.

Mr. Parkhurst, Mr. Fahrney, Mr. Hughes and Mr. Mohr will also serve as directors. Other members of the California Chemical board will be: G. A. Davidson, vice president and director, Standard Oil Company of California; Fred Powell, vice president and director of Standard Oil Company of California, Western Operations, Inc.; A. L. Lyman, president, California Research Corp.; and W. H. Shiffler, Cal. Research vice president.

INSECT, PLANT DISEASE NOTES
See Page 4

Potash Deliveries For Agriculture Dip In First Quarter

WASHINGTON—A total of 1,162,142 tons of potash salts containing an equivalent of 685,917 tons of K_2O was delivered during the first quarter of 1957 by the eight major American producers, according to the American Potash Institute. This represents an increase of over 4% in salts and K_2O over the corresponding period in 1956.

Deliveries for agricultural purposes in the U.S., Canada, Cuba, Puerto Rico and Hawaii were down 17,954 tons K_2O or 3% under last year. They consisted of 989,984 tons of potash salts equivalent to 581,689 tons of K_2O as compared to 599,643 tons K_2O in the first three months of 1956.

Muriate of potash predominated with 548,346 tons K_2O whereas 32,459 tons were delivered as sulphate of potash and sulphate of potash-magnesia, and 884 tons as manure salts.

Deliveries for chemical purposes totaled 48,926 tons of salt equivalent to 30,453 tons K_2O, a decrease of over 11% in salts and K_2O under the corresponding period a year earlier. Exports to other than Institute countries amounted to 123,232 tons of potash salts containing 73,775 tons K_2O, an increase of 230% in salts and 226% in K_2O over 1956.

POTASH DELIVERIES
Short Tons K_2O
(U.S., Canada, Cuba, Puerto Rico, Hawaii)

	Jan.-March 1957	Jan.-March 1956
Muriate	548,346	561,538
Manure Salts	884	507
Sulphate and Sul. Pot. Mag.	32,459	37,598
Total Agricultural	581,689	599,643
Chemical Potash	30,453	34,319
Exports (Other Countries)	73,775	22,618
GRAND TOTAL	685,917	656,580

Contracts Awarded For Wyoming Hopper Control Project

CHEYENNE, WYO.—Master Equipment Co. of Cheyenne and Interstate Services Co. of Vancouver, Wash., have been awarded contracts for Wyoming's 1957 grasshopper spray project.

The Cheyenne firm got the contract for spraying 698,700 acres, largest hopper control program in the state since 1951. The bid of Interstate to furnish the insecticide solution for the work was accepted.

Re-Mark Chemical Co. Purchases Florida Firm

MIAMI—Re-Mark Chemical Co. has purchased the Fort Pierce branch of the Glade & Grove Supply Co. of Princeton, Fla. David Marks, Re-Mark president, said the acquisition would add to his firm's volume through boosted sales of sulfur insecticides and fertilizers in the Indian River area.

Confidence in Current Farm Program Fades

By JOHN CIPPERLY
Croplife Washington Correspondent

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REDUCTION ASKED IN SOIL BANK APPROPRIATION—
SEE PAGE 3

WASHINGTON, D.C.—Despite the hopeful optimism of Ezra Taft Benson, secretary of agriculture, over the outlook for the farm situation, a closer study does not convey such confidence in the future under the present farm law. At the same time it must be noted that Mr. Benson himself does not put great faith in the flexible price support program as it now stands with a spread of 75 to 90% of parity support for the basic commodities.

Although he has not said so in so many words, it is evident that he would drop the flexible price support program—at least at the above mentioned levels—as quickly as possible.

The line-up here finds the formerly solid Farm Bloc badly shattered—probably permanently so. The escape valve of acreage controls in times of over-supply has been a painful trap to cotton and tobacco farmers who are now working on acreage allotment

(Continued on page 25)

February Super Output Below Year Ago

WASHINGTON—February production of superphosphate and other phosphatic fertilizers totaled 215,474 short tons, compared with 243,934 short tons in February, 1956, according to the U.S. Department of Commerce.

Shipments last February amounted to 155,579 short tons, a reduction from 179,110 short tons in February a year earlier. Stocks on hand at the end of February were 419,631 short tons, compared with 432,524 short tons a year earlier.

The February, 1957 production included 131,944 short tons of normal and enriched, 64,950 short tons of concentrated and 18,580 short tons of other phosphatic fertilizers.

Inside You'll Find

No Major Farm Legislation Seen for 'Long, Long Time'

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—Information from the most reliable farm observer on the Senate side of Capitol Hill says in effect: There will be no major farm legislation for a "long, long time."

On closer examination, this news source interpreted "long" to mean probably 15 months.

This opens a new avenue of values of some recent reports. The reports were that the U.S. Department of Agriculture, before the end of this session of Congress, probably would send to Congress, through a White House announcement, a message outlining an entirely new farm program and rejecting current farm policies as ineffective and worthless in major respects.

This information is incorrect. It resulted, according to the source quoted above, from a letter sent to Ezra Taft Benson, secretary of agriculture, by the Senate Agriculture Committee chairman, Allen J. Ellender (D., La.). The senator asked the secretary to submit his ideas of a new farm program to Congress which coincides with the Benson farm program philosophy.

The congressional source called the Ellender letter a snare to entrap Mr. Benson in the same way that Charles F. Brannan, former secretary of agriculture, was entrapped when he sent the ill-fated Brannan Plan to Congress.

This same source declared that Mr. Benson will not be taken in by this political device and that no major farm legislative proposals will go to Congress for the above-mentioned "long, long time."

There is controversy within Republican ranks, and behind it is a struggle for power between an Eisenhower faction and a Nixon group seeking the 1960 nomination.

It has been learned from authoritative sources—not those quoted above—that the Nixon-Tom Dewey contingent of the GOP is disclosing farm problem ideas which outdistance even the Brannan plan thoughts.

GIBBERELLIC REGISTRATION

SACRAMENTO, CAL.—The Bureau of Chemistry, California Department of Agriculture, has issued its first registration of gibberellic acid as an auxiliary plant chemical for use on ornamental plants. For the present, its use on food or feed plants is restricted to experiments.

Oklahoma Scientists To Take Second Look At Entomology Research

STILLWATER, OKLA.—An int sive second look into the future entomology research is being tak by Oklahoma A&M scientists w prospective studies in that field hi ing to a large extent on a recen completed insect population censu

Dr. F. A. Fenton, Oklahoma A& entomology professor, has taken t first step into the field of resear A&M entomologists hope to open. A though the test was carried out o on alfalfa, some 300 different spec of insects were found, many of wh were the harmful pests currently g ing Oklahoma farmers trouble.

Among the injurious species—c lected by sweep nets and ground tra in the alfalfa field—were the spott alfalfa aphid, the pea aphid, lyg bugs, seed chalid, blister beetl grasshoppers, leafhoppers, thrips a caterpillars.

Such samples as these, when c lected from all the principal crops Oklahoma, will reveal the need f future studies in entomology, D Fenton said.

The entomologists found that pra tically all the major insect pests crops grown in Oklahoma, with t exception of the cotton boll weev have enemy insects such as the la beetle on the alfalfa aphid.

An insecticide that doesn't aim a 100% kill, but one that will pa tially subdue the population of t pest and let the predator or parasi live, may be the future answer chemical control techniques, Dr. Fe ton said.

"This all points out the futu needs of research," he stated. "T most important single factor on whi harmful insect infestations depend the weather."

Pathologists Outline Leaf Blight Control

BERKELEY, CAL.—A fungu caused leaf blight, latest uninvit guest in California almond orchard can be controlled by proper use fungicides. Four plant pathologists the University of California at Dav said this in a recent report on the study of the blight's symptoms a remedies.

The disease was first spotted 1950 in Butte County orchards. T day it occurs throughout the Sacr mento and northern San Joaquin va leys, the area where 86% of t state's almond orchards are locate

According to the plant pathologis —E. E. Wilson, J. M. Ogawa, Harl English, and H. J. O'Reilly—the r sponsible fungus has not yet be identified. However, presence of t disease can be detected when, b ginning in June, individual leaves shoots or spurs begin to wither, tu brown, and dry up. A portion of the shriveled leaves remain on the tre until the following spring. In wint the lower ends of persisting lea stems may turn light tan. Then sma dark spore-bearing bodies of the fu gus may develop on these parts.

The pathologists recommended le blight control by use of either pr tective fungicides applied at late pet fall stage, or eradicative fungicid applied in early spring before t buds begin to open.

BEET LEAFHOPPER STUDY

PORTLAND, ORE.—Oregon a Washington growers of sugar bee tomatoes, beans and melons will ben fit from a long-term study just star ed on the beet leafhopper populati in the Columbia River basin regio First surveys were made in April Umatilla and Morrow counties Joseph Capizzi and Kenneth Goed survey entomologists with the Oreg Department of Agriculture.

President Asks Reduction in Soil Bank Appropriation

WASHINGTON—The President has transmitted to Congress an amendent to the 1958 budget involving a reduction of $254 million in appropriations to the U.S. Department of Agriculture for the soil bank program. The reduction in 1958 expenditures will be approximately the same amount, according to a report from the White House.

The appropriation estimate in the 1958 budget was $1,254 million. The amendment reduces it to $1,000 million.

A detailed study of the operations of the soil bank program has just been completed. On the basis of this study, it now appears that the financial needs of the program in 1958 will be less than had been contemplated at the time of the preparation of the 1958 budget for the following reasons:

1. It is now estimated that the sign-up for the 1956 and 1957 conservation reserve programs will be much less than expected last fall, and thus the payments to farmers under the program will be less than originally planned. Under the conservation reserve program, farmers receive rent for cropland placed in cover crops and reforestation and also receive payments to cover part of the cost of carrying out conservation practices. The program is effective for five calendar years from 1956 through 1960.

2. The timing of the payments for both parts of the soil bank program—the conservation reserve program and the acreage reserve program—will be made later in the calendar year than was originally contemplated. This will result in a shift in the need for funds between fiscal years. Under the acreage reserve program, farmers are compensated for loss of net income resulting from their voluntary withdrawal of land from crop production.

3. There will be a substantial reduction in operating expenses in 1958 from the level originally contemplated.

Rain Slows Farm Work in Mid-South

MEMPHIS—Although the crop has not been planted generally, cotton is coming up in scattered areas of the Mid-South. Rain has been the big problem all over the area.

Extension agents in Arkansas, Mississippi and Tennessee said the farm situation grew worse during the week as rains continued. They estimated farmers in some areas are as much as a month behind in their spring planting schedule.

There were other problems, too. Lowlands were flooded in Arkansas, and army worms were reported in the oat and wheat crops in the Mississippi Delta. May beetles were reported damaging leaves of pecan and oak trees. Arkansas strawberry growers reported heavy rains and severe cold weather have hurt their crop.

Mississippi officials said that except for lowlands and the Delta areas, cotton and corn planting is in full swing.

In a few spots in Southeast Missouri, cotton is coming up and wheat is looking good. For the most part, however, the land is still too wet for planting.

West Tennessee farmers are making slow progress in planting their crops. Farmers have begun harvesting strawberries, but rains have hurt the quality.

Grassman of the Year Contest to End

PORTLAND, ORE.—The Portland Chamber of Commerce has announced plans for the 1957 "Grassman of the Year" contest and has revealed that the contest will be terminated this year.

"We have enjoyed seven highly successful years with the grassman contest," said Will W. Henry, chamber agricultural chairman. He explains 'the contest has been a very effective means of creating awareness and interest in the importance of pasture and range management."

While there is still a great need for emphasizing grassland agriculture in this region, the contest has served its purpose and should be terminated at the completion of the 1957 contest, Mr. Henry said.

The chamber is sending out contest information and applications to Oregon, Washington and Idaho county agents.

IMC Earnings, Sales Show Increase In Third Quarter

CHICAGO—International Minerals & Chemical Corp. has reported net earnings after taxes of $3,137,000, or $1.30 per share, on the 2,337,257 common shares outstanding, for the third quarter ended March 31, 1957.

This compares with $2,575,000, or $1.06 per share, for the third quarter ended March 31, 1956.

Third quarter sales, totaling $30,476,000, were up nearly 7% over the $28,583,000 of a year ago.

Louis Ware, IMC president, said the sales increase reflected a substantial gain in shipments of phosphate feed and concentrated phosphate from the company's Bonnie chemical plant, near Bartow, Fla.

Mr. Ware said that the increased earnings included a non-recurring profit of $714,520 realized from the sale and lease-back of land and buildings at the site of the company's research laboratory and new administrative center at Skokie, Ill.

Earnings after taxes for the nine months ended March 31, 1957, were $4,959,000, or $2 per share, compared with $3,030,000, or $1.17 per share for the nine months ended March 31, 1956.

Sales for nine months of this fiscal year were $72,414,000, or 9% ahead of the $66,204,000 of a year ago.

PLANT PATHOLOGIST NAMED

CLEMSON, S.C.—Fred H. Smith has been named plant pathologist for the Clemson Extension Service. He has already begun his new duties with headquarters at Clemson. Mr. Smith received a B.S. degree in agriculture from the University of Georgia in 1951 with a plant pathology major. He received his M.S. degree in agriculture with plant pathology as a major from the same institution in 1952.

INSECT AND PLANT DISEASE NOTES

Alfalfa Weevil Damage Heavy in Maryland

COLLEGE PARK, MD.—Alfalfa weevil infestations are general in the Eastern Shore Counties with 90% of the tips showing damage. Spraying is general on the Eastern Shore. Pea aphids are from light to moderate on alfalfa in most sections. Meadow spittlebug populations remain light on alfalfa and clover in most sections.

Cutworm moths are increasing in numbers at the light trap at Fairland. These moths will produce larvae that damage corn and transplanted crops, particularly in sod land prepared for crops.

Strawberry plants are in full bloom in Wicomico and Somerest counties. Spider mites were found on strawberries at Salisbury and damage from the strawberry weevil or clipper was noticed at Rehobeth in Somerset County.

Eastern tent caterpillars are abundant on wild cherry and fruit trees in most sections. Euonymus scale should be hatching soon. Watch the leaves and stems for the little golden crawlers.

Flea beetles are beginning to damage young tobacco plants in beds in Prince Georges County. Vegetable weevils were reported on plants in Calvert County.—Theo. L. Bissell and Wallace Harding, Jr.

Late Blight Reported Severe in Virginia

BLACKSBURG, VA.—Late blight of tomatoes is prevalent in many southern states, and Virginia growers are warned that unless they apply chemicals for control this year they may lose their crop.

S. B. Fenne, plant pathologist at Virginia Polytechnic Institute, says reports coming through the disease-forecasting service indicate that a potential epidemic is in the making, and there is need for extreme precaution and control measures.

In many ways, Mr. Fenne says, the current late-blight situation in the south resembles that of April, 1946, when blight became disastrous for tomato growers before the season ended.

The pathologist's advice to commercial growers and home gardeners in Virginia is to be ready to spray when the plants are set, but reminds that such spraying will prevent rather than cure, and should be applied before the disease attacks the crop.

Mr. Fenne also reports that blue mold of tobacco is continuing to spread in nearby states, with severe damage in untreated beds. Here, again, Virginia growers are advised to start spraying with ferbam or zineb as soon as the plants are about the size of a dime. Also reported was severe damage from anthracnose in untreated tobacco plant beds in North Carolina.

Armyworms Expected Later This Season

KNOXVILLE, TENN.—Unusual watchfulness for evidence of an armyworm outbreak has been urged in Tennessee by Dr. S. Marcovitch, experiment station entomologist. He points out that armyworms and drouth years go together, since dry weather is usually fatal to parasites which tend to keep the armyworm under control.

He reminds that the destructive outbreak of 1953 was preceded by the unprecedented drouth of 1952. The year of 1956 was also dry, he adds, especially in Middle and West Tennessee, with its center at Milan, Tenn.

These areas, particularly where most of the local showers were missed last July, August, and September, should be especially on guard for armyworms, Dr. Marcovitch says. Grain fields should be examined frequently, since most of the damage is caused by the full-grown worms. More than four worms per square foot means that control measures will be needed.

Arkansas Entomologists Advise Constant Vigilance

FAYETTEVILLE, ARK.—In a prediction for insect conditions for Arkansas in 1957, Dr. Lloyd O. Warren, assistant entomologist with the Arkansas Agricultural Experiment Station said that the signs are both favorable and unfavorable.

For example, he says, trash samples indicate that fewer boll weevils went into hibernation than in 1955-56, but more than in 1954-55. Grasshoppers may present a serious threat, he feels. They were more numerous last year than in 1955, and the weather in late summer and fall was very favorable to egg deposition. With crop acreage going into grass and soil building crops under the Soil Bank Program, it is quite likely that grasshoppers and other forage crop pests may increase, he warns.

Other potential dangers are the chinch bug and the European corn borer. Infestations of the latter are likely to increase in range and intensity. In the case of the chinch bug, the number in winter quarters is larger than usual, and therefore increased numbers can be expected in 1957. Seventeen of the northeastern counties are in the heavily infested area.

The prevalence of such other insect pests as pea aphid, cutworms, armyworms, and spotted alfalfa aphid will be influenced to a great extent by seasonal weather conditions, according to Dr. Warren.

Spotted Aphids Scarce, Missouri Report Says

COLUMBIA, MO.—Apparently the combination of wet and cold weather during the winter has virtually eliminated the threat of damage this spring from pea aphids and spotted alfalfa aphids. The spotted aphid is scarce over the entire state, and in most sections, pea aphid numbers are also low. There are some pea aphids in the central portion of the state, but not enough to cause any concern at this time.

We're past the point where clover leaf weevils can cause any injury this season. Within the past week or so, disease has hit them, and they are being rapidly eliminated. Some leaf ragging is noticeable in red and ladino clovers, but there is little possibility of more damage occurring.

Armyworm moth flight is still relatively low, but is continuing, and at the present time, it's hard to know what to expect. During the past couple of weeks, small grain has grown to the point where it is now rank enough to be attractive to the moths, and there is still the possibility trouble may develop.

In the southern counties, English grain aphids are working some fields of small grain, but so far, they are not numerous enough to justify spraying. With the start that parasites and predators seem to have in infested fields, it seems highly improbable that spraying will become necessary.—Stirling Kyd and George W. Thomas.

Weevils and Late Blight Threatens in Alabama

AUBURN, ALA.—Boll weevils and diseases of potatoes and tomatoes were in the news from Alabama last week. W. A. Ruffin, entomologist at Alabama Polytechnic Institute reported that the boll weevil in Alabama is massing its largest army in six years. However, the dry weather of the past six years had held the insect's population below normal, and this year may repeat on this score.

Mr. Ruffin said that boll weevils in Alabama have not yet become resistant to insecticides, and last year's studies revealed that in treated cotton fields, yields ran 1,000 lb. an acre more than in untreated fields. He reported further, that tests run in various counties of the state proved weevils were just as hard to kill in one portion of the state as another.

Tomato and potato growers in Alabama were being warned by John Bagby, API horiculturist, to be on guard against an outbreak of late blight.

He reported that already a serious outbreak of late blight on potatoes has been reported in Baldwin and Escambia counties, but no reports have been made of this disease on tomato plants yet. However, an outbreak is possible, particularly in South Alabama. Here large numbers of tomato plants come from Florida, where the disease has reached serious proportions.

The specialist pointed out that control measures are preventive and urged growers to spray or dust their plants before disease occurs. Late blight first shows up in a dead, blackened area on the stem an inch or two below the tip. Later the leaves die, and the fruit rots.

Mississippi Peach Crop Affected by Leaf Curl

STATE COLLEGE, MISS.—The Mississippi peach crop has been affected in certain sections by two unusual conditions, although it escaped serious damage from late frosts, according to Chesley Hines, horticulturist of the Agricultural Extension Service.

In the northern one-third of the state, he reported severe infection of peach leaf-curl disease on the leaves of peach trees that were not sprayed to control this disease.

The only control for this disease is to spray peach trees in the late dormant season following years in which the leaf-curl is prevalent, Mr. Hines said.

Pesticide Use for Weevils Indicated

URBANA, ILL.—Warm weather at the end of April made pesticide application practical for control of clover leaf weevil in Illinois, according to report by H. B. Petty, Illinois Agricultural Extension Service entomologist. A fungus disease has been fatal to a high percentage of the weevils, it is reported.

Newly-hatched nymphs of spittlebug were found in northern Illinois, with heaviest infestations in the northern two tiers of counties. Application of insecticides will be warranted if there is an average of one or more nymphs to the stem, it is advised.

Armyworm flights are continuing in Illinois, but the intensity was not determined late in April. Farmers were advised to observe vigorous growth of grasses and grains for signs of armyworms for the next few weeks.

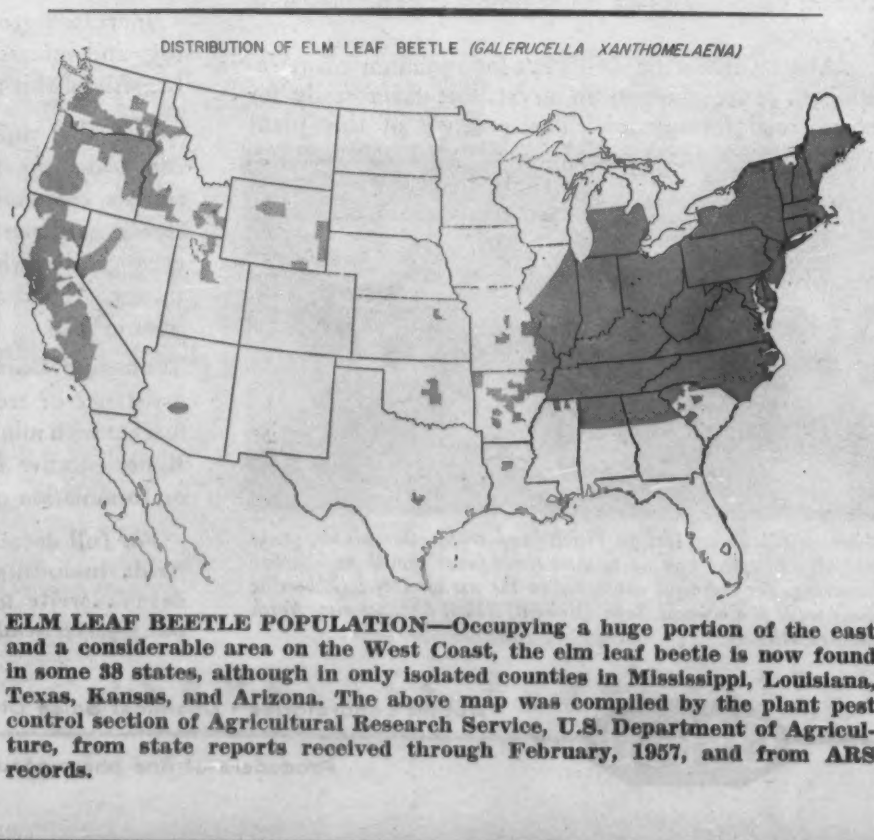
California Growers Urged To Watch Spotted Aphids

BERKELEY, CAL.—Alfalfa growers will have to use skilled judgment in deciding whether to spray to kill the spotted alfalfa aphid, according to the advice of Andrew S. Deal, extension entomologist, who addressed growers attending a recent field day at the University of California's Imperial Valley Field Station near El Centro.

"Don't just knock a few plants into your hand," Mr. Deal said. "Take a knife and carefully cut off plants in several parts of the field. Count the

INTRODUCING: ELM DISEASE

GRAND RAPIDS, MICH.—The innocent import of 12 carloads of Carpathian elm stumps from Europe back in the 1920's brought to the U.S. Dutch elm disease which has injured or destroyed many of the elm trees in the eastern half of the nation. Bernard Warren, 84, retired furniture manufacturing executive of Grand Rapids, recalls that over 30 years ago he had the stumps brought over from Poland and Czechoslovakia where they had been cut by Carpathian mountain woodsmen. They were shipped via Baltimore, Md., to a Cincinnati, Ohio wood veneer plant, and soon thereafter, the first blight struck in Baltimore. Mr. Warren, ruefully recalling the details, says "the whole thing was done innocently. If I had it to do over again, I'd leave the darn stuff over there. I'm not a bit proud of it."



ELM LEAF BEETLE POPULATION—Occupying a huge portion of the east and a considerable area on the West Coast, the elm leaf beetle is now found in some 38 states, although in only isolated counties in Mississippi, Louisiana, Texas, Kansas, and Arizona. The above map was compiled by the plant pest control section of Agricultural Research Service, U.S. Department of Agriculture, from state reports received through February, 1957, and from ARS records.

phids underneath the leaves; find the verage number per stem."

"If you have more than 20 per em your field needs treating. If our fields are on the borderline eck them every day. This is par-cularly important right now when phids build up fast."

lant Disease Potentially angerous in Kansas

MANHATTAN, KANSAS — What ppears to be a new manually-trans-issible virus disease of switchgrass, anicum virgatum L., is reported by . H. Sill, Jr., of the Kansas State ollege department of botany and lant pathology.

R. C. Pickett, former K-State staff ember now with Purdue University, rst observed this disease in 1953 on witchgrass in a two-year-old breed-ng nursery at the Kansas agricul-ural experiment station. Mr. Sill egan work in 1954 to prove or dis-rove the possibility of this being a ew virus disease.

Although not important in Kansas ow, the disease can cause such ex-reme forage and seed reduction in ndividual plants that it must be con-idered as potentially severe.

Differences in susceptibility of switchgrass selections are reported and three selections are probably immune. Based upon abrasive inoculations, the host range of this virus would appear to be distinctly different from any other known grass or small grain virus. So far only a small number of rather closely related grasses has been infected. Successful cross inoculations were made between susceptible species.

Switchgrass is a perennial and the virus has persisted in some individual plants since 1953. No rapid field spread has been observed.

The symptoms are a yellow or light green blotchy mottle, mosaic, and streaking of the leaves. The entire plant or sectors of it were chlorotic when badly stunted. Generally infected plants were stunted.

Alfalfa Weevil Doing Damage to Southern Crop

CLEMSON, S.C.—Highlights of the insect situation in South Carolina at the end of April included these bits of information:

Boll weevils were coming out of hibernation in Lee County; serious leaf and bud damage to alfalfa at Fairfield is suspected of being from alfalfa weevil. Reports indicate the condition is widespread, and surveys are under way.

The first positive identification of alfalfa larvae and adults has been made at Florence.

Plant diseases are also in the news, with tobacco blue mold leaf necrosis reported; culm rot and chlorosis noted on oats in some areas; and mildew of wheat is causing yellowing of lower leaves in the Pee Dee area. Some rust is showing up on wheat in the state.

Insect Activity Light, Kansas Report Says

MANHATTAN, KANSAS — No spotted alfalfa aphids were found in Marshall, Marion, Saline, or Dickinson counties at the end of April. They were found in southern Leavenworth county and Shawnee and along roadsides in Pottawatomie, Geary, and Leavenworth counties.

Most of the alfalfa fields in the north central part of the state have some pea aphids now. Counts range from 0-150 for 25 sweeps of the insect nets. Some roadside counts were much higher.

One field of alfalfa in Marshall county had enough army cutworms to damage small alfalfa plants. Most of the fields of alfalfa and wheat have enough foliage so cutworms should no longer be a problem.

Chinch bugs have scattered from hibernating quarters and can be found in small grain fields in Eastern Kansas counties.

The first grasshopper nymph of the season was found in Pottawatomie, Shawnee, Jefferson, and Douglas counties—David L. Matthew and Dell E. Gates.

Oats Affected By Leaf Blotch Disease

RUTHERFORDTON, N.C.—A large number of fields of oats in this area are infected with leaf blotch, a seed-borne fungus that thrives in cool, humid, and cloudy weather, Glenn Toomey, County Farm Agent, has reported.

The disease has been the most prevalent threat to oats seen this year, although it has frequently been noted in the past in this area.

All varieties of oats seem to be susceptible. Seed treatment will kill the fungus on the seed and reduce the early amount of infection, and crop rotation is beneficial in reducing the amount of infection from soil-borne inoculum, the agent said.

Scattered reports of leaf spot and blight in oats have also been recorded in South Carolina by the S.C. Crop Reporting Service.

Texas Area Receives Grasshopper Warning

PLAINVIEW, TEXAS — Farmers and ranchers of the Texas High Plains have been warned of a damaging grasshopper infestation during the spring and summer months by F. M. Fudge and C. F. Garner, Texas Extension Service entomologists.

Based upon a survey made by the U.S. Department of Agriculture, the counties most in danger are those in the lower Panhandle and on the rolling plains to the east.

Peach, Apple Insects Active in Indiana

VINCENNES, IND. — Rapid plant growth and local showers in the period of April 24-30 kept conditions ideal for scab, brown rot and cedar rust infection. It is still too early for scab infection to be showing. Peach leaf curl is prevalent in several orchards where dormant sprays were omitted, especially on Sullivan Elbertas.

No trees were bumped during the period. Data from the preceding week showed that protection was needed for plum curculio and stink bugs. It is especially important to get a good cover of insecticide on the peaches when the shucks are 50 to 100% off. Oriental fruit moth adults were taken in bait traps on April 27 and 28.

Observations made by personnel at this laboratory and reports received by growers indicate that red-banded leaf roller eggs are more prevalent than during the past few seasons.

Codling moth have not started to emerge. Rosy aphids are present in localized areas where dormant sprays were not applied. Green apple aphids

(Continued on page 8)

H. R. Cox

TO MANAGE TEST FARM—H. R. Cox was recently appointed manager of its experimental farm near Raleigh, N.C. by Carbide and Carbon Chemicals Co., Division, Union Carbide & Carbon Corp. The announcement was made by Dr. Richard H. Wellman, manager of the firm's Crag agricultural chemicals division. The experimental farm comprises 142 acres 17 miles southeast of Raleigh, and is under the direction of Dr. Ernest R. Marshall, coordinator of field testing for Carbide's new agricultural chemical products. Mr. Cox is a 1954 graduate of North Carolina State College, and joined Carbide early this year after his discharge from the U.S. army.

Oregon Department To Field Test Ammonia

PORTLAND, ORE.—Field testing of liquid ammonia samples at plants has been started by the Oregon Department of Agriculture. At the same time, the department will continue to bring official samples into its laboratories at Salem for chemical tests, comments J. D. Patterson, chief chemist and assistant chief of the Foods and Dairies, Weights and Measures Division.

The liquid and anhydrous ammonia business in Oregon is one of the fastest growing in the fertilizer field, Mr. Patterson says. Last year sales of more than 5,000 tons of anhydrous ammonia and more than 26,000 tons of liquid ammonia were reported to the department by Oregon firms.

Only one concern is manufacturing anhydrous ammonia in Oregon; the rest is shipped into the state. Several plants here are mixing the gaseous liquid to dilute it with water to the usable stage, usually a 20% ammonia product.

Scientific Party To Study Crop Pests In Central America

SAN FRANCISCO—A party of scientists, organized by Stanford Research Institute, left New Orleans for Central America April 20 to spend three weeks studying diseases and pests attacking bananas and other tropical crops.

Sponsored by the United Fruit Co., the tropic research tour includes leading plant research specialists of the country. They will visit tropical research stations, experimental farms and plantations in Honduras, Costa Rica and Panama operated by United Fruit.

Organizer of the research mission is Dr. Harris M. Benedict, senior plant physiologist at Stanford Research Institute, Menlo Park, Cal.

Leaving with Dr. Benedict from San Francisco for a rendezvous with the remainder of the party in New Orleans were Dr. William C. Snyder of the department of plant pathology, University of California at Berkeley; Dr. Roy Alton Young of the department of botany, Oregon State College, Corvallis; and Dr. Kenneth F. Baker of the department of plant pathology, University of California at Los Angeles.

Arriving in New Orleans were Dr. Douglas M. Whitaker of the Rockefeller Institute for Medical Research, New York, former provost of Stanford University; Dr. Robert H. Burris of the department of biochemistry, University of Wisconsin, Madison; Dr. Herbert H. Kramer of the department of agronomy and Dr. Norman J. Volk of the agricultural experiment station, Purdue University, Lafayette, Ind.; and Dr. Maurice B. Linford of the department of plant pathology, University of Illinois, Urbana.

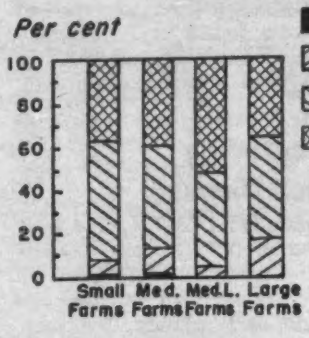
Accompanying the party as host for United Fruit Co. was Dr. Hartley Rowe, vice president for research. Joining the party in Honduras was William C. Estler of Palo Alto, Cal., technical public relations consultant.

The research tour was conceived by Dr. J. E. Hobson, vice president of United Fruit and former director of Stanford Research Institute, with Dr. Rowe in support of the company's long range research program. Dr. Hobson met the tour in Honduras.

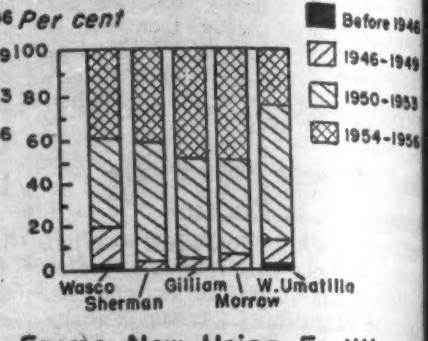
DAVISON SELLS BUILDING

BALTIMORE, MD.—Davison Chemical Co., Division of W. R. Grace & Co., has announced the sale of the Davison Chemical building in downtown Baltimore. Purchaser was Blaustein Industries, Inc. The Davison firm has leased approximately 70% of the space in the 12-story building for a 15-year term, according to W. E. McGuirk, Jr., president of the division. He said that the division would continue to maintain its headquarters in Baltimore.

First Fertilizer Use



First Fertilizer Use



Nitrogen Use on Wheat in Columbia Basin Studied

CORVALLIS, ORE.—Ninety per cent of the Columbia Basin summerfallow wheat farmers applied fertilizers for the first time after 1950. About half who now use fertilizers began using them between 1950 and 1953.

Small-acreage farmers and those in Wasco and western Umatilla counties began using fertilizers earliest. But now, a higher proportion of those operating medium to large wheat farms are using nitrogen.

Yield increases from nitrogen ranged from 6 to 15 bu. an acre, according to the farmers' estimates.

These are a few of the findings of Henry Stippler, U.S. Department of Agriculture agricultural economist at Oregon State College. They were reported in the current issue of "Oregon's Agricultural Progress," publication of the college.

Mr. Stippler surveyed 318 wheat-fallow farmers in Wasco, Sherman, Gilliam, Morrow, and western Umatilla counties, asking them how much, when, and which kind of nitrogen fertilizers they have used or are using.

His sample was adjusted so a representative number in different-sized wheat farms were contacted. Information was obtained from those operating small farms (720 acres and under), medium farms (721 to 1,440 acres), medium-large farms (1,441 to 2,400 acres), and large farms (2,401 acres and over). Only use of fertilizers containing nitrogen was surveyed. Results are shown on the accompanying graphs.

Mr. Stippler found that many farmers limit fertilizer applications to that part of their wheat acreage they think will boost yields most, especially if they are just "trying" fertilizers. Differences in soil and moisture between fields, in amounts of straw mixed in the soil, and in ability to pay for fertilizers are some of the reasons he thinks fertilizer use varied from year to year and from farm to farm.

The economist gathered more information about specific fertilizer use in 1955 and 1956.

Most farmers applied nitrogen the fallow year. Only a few applied in the spring.

About 61% used the gas form in 1955-56. Dry fertilizers averaged 28%; liquid forms, 11%. About the same percentage was found by figuring use in acres fertilized and in actual nitrogen applied.

Applications averaged 30 lb. of actual N per acre, regardless of type of material used. Few farmers exceeded 40 lb., but many applied less than 30 lb. When lack of money restricted the amount they spent for fertilizers, farmers cut the rate applied per acre rather than the total acreage.

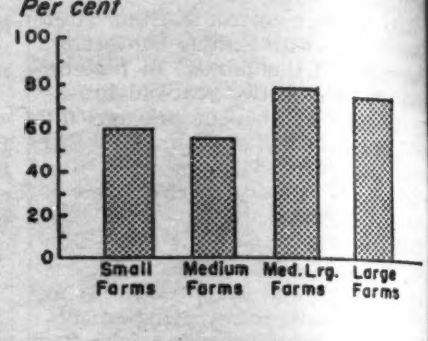
Farmers also described some of their experiences with nitrogen. Most believed available soil moisture prior to seeding, soil texture, and depth were equally important and this seemed uppermost in their minds when it came to deciding whether to fertilize, how much, when, and in which form.

Many farmers felt nitrogen should be applied only after considering summerfallow handling methods and other wheat growing practices. Included was the method of mixing crop residues in the soil. Benefits from storing moisture and from preventing soil erosion were considered by some to be equal in value to yield increases.

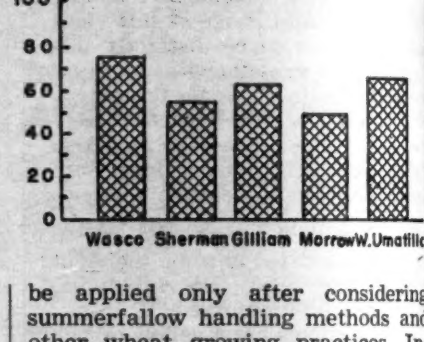
Farmers estimated their yield increases from nitrogen ranged from 6 to 16 bu. per acre. More than three fourths reported satisfactory results. Twelve per cent said they were still "experimenting" or had completed their first large-scale test in 1956. Some 5% questioned the benefits of nitrogen; 6% reported unsatisfactory results, and were discontinuing fertilizer use.

Of those who had not used nitrogen in the past, about 90% did not indicate any plants for future use. A few opposed increasing wheat yields this way. But the remaining 10% said they intended to try nitrogen.

Farms Now Using Fertilizers



Farms Now Using Fertilizers



J. Guy LaVergne Promoted by Escambia

PENSACOLA, FLA.—J. Guy LaVergne has been promoted to chief engineer of Escambia Chemical Corp. in Pensacola, it was announced by Ralph M. Brown, plant manager.

Mr. LaVergne joined Escambia in August, 1955, as chief design engineer. His background includes experience as inspection engineer and design engineer with petrochemical companies in the U.S. and Canada.

He graduated from the University of Toronto with a B.S. degree in chemical engineering and holds a certificate in business administration from McGill University of Montreal, as well as a certificate of corrosion engineering from the University of Illinois. He resides in Pensacola with his wife and three children.

New Mexico Shipments

STATE COLLEGE, N.M.—Fertilizer shipments in New Mexico during the first three months of 1957 totaled 19,109 tons, according to the New Mexico Feed & Fertilizer Control Office. The total included 11,509 tons of superphosphate and 4,451 tons of nitrogen materials.

ANT FOOD INSTITUTE HONOR-
—Dr. Russell Coleman, executive
e president of the National Plant
od Institute, views the American
blic Relations Assn.'s Silver Anvil
phy awarded the Institute in the
ld of agriculture as highest honor
the field of public relations. The
ard to the Institute was made at
e association's thirteenth national
nference in Philadelphia. See story
page 7 of the April 29 Croplife.

Weather Delays Spring Farm Work in Oregon

PORTLAND, ORE.—Rains and cool weather last week continued to delay the progress of field work in Western Oregon. Spring field work was one to two weeks later than normal in this area, reports the Oregon U.S. Department of Agriculture Crop and Livestock Reporting Service.

However, the weather was favorable for established crops such as hay fields, seed crops, fall seeded grains, fruits and berries. Generally, less than half of the spring wheat and oats have been seeded in western Oregon and less than one fourth of the spring barley.

Cultivation, spraying and fertilizing of crops made limited progress between rains. Cannery peas were starting to emerge in Washington County.

Rains delayed Eastern Oregon field work. Winter wheat continued to make good progress in Columbia river basin counties. Over 90% of spring wheat and spring barley had been seeded in Gilliam, Morrow, Sherman, Malheur, Umatilla and Wasco counties.

Crook, Deschutes, and Jefferson counties had over three fourths of the spring wheat seeded but less than one half of the spring barley and oats. Baker and Union counties show from one fourth to one half of the spring wheat seeded but less than one fourth of the spring barley and oats in the ground.

Frosts and wet weather were delaying the spring grain seedings in Wallowa county. Klamath, Lake, and Harney county farmers were starting to seed spring grains.

Malheur County high winds damaged sugar beets and the replanting of a small acreage was necessary. In this area, planting of sugar beets and early potatoes was nearing completion and farmers were preparing ground for the corn crop.

Wyoming Water Outlook

LARAMIE, WYO.—March snows added to the Wyoming snowpack were the "heaviest on record" but still fell short of adding enough to provide adequate runoff for most of the state. So ran the latest preliminary water-supply outlook report from the Soil Conservation Service. The report, the result of March surveys on 120 snow courses, noted that irrigation water supplies stored in high watersheds range from 107% of normal in the south to 70% of normal in the north. Storage in the state's reservoirs still stands at 70 percent of normal—about the same as a month ago.

Pennsalt Net Profits Up in First Quarater; Firm Gets New Name

PHILADELPHIA—First quarter net profits of Pennsylvania Salt Manufacturing Co. were $1,035,500, an increase of 15.7% over net profit in the corresponding period last year, William P. Drake, president of the firm, reported at the recent annual meeting.

Earnings per share were 81¢ versus 72¢ for the same quarter in 1956. First quarter sales for 1957 were $19,111,000, an increase of 10.8% over the same period for 1956.

Highlighting actions of the shareowners was the approval of "Pennsalt Chemicals Corp." as the new official name of the company. Objective of the change is to provide a name more descriptive of the company's present activities as a major producer of chemicals for industrial, farm and home use, company officials said.

Included in the order of business was the reelection of four directors: Francis Boyer, president, Smith, Kline & French Laboratories; William P. Drake, president, Pennsalt Chemicals Corp.; Charles B. Grace, president and treasurer, Heintz Manufacturing Co.; and Fred C. Shanaman, vice president, Pennsalt Chemicals Corp.

Shareowners also voted to amend the company's articles of incorporation to broaden its statement of purpose, to increase authorized common stock to 2,000,000 shares and to eliminate pre-emptive rights. In addition, shareowners approved an increase in authorized indebtedness to $50,000,000, and an amendment of bylaws to provide for a stock purchase plan for Pennsalt employees.

Filbert Growers Want More Favorable Parity

PORTLAND, ORE.—The Oregon Filbert Commission has requested Ezra T. Benson, secretary of agriculture, to hold a hearing sometime before June 10 for the purpose of considering the industry's request for a more favorable parity rating for filberts. In announcing the board's action, Roy A. Ward, commission chairman, said that members of this group are much concerned with the effect of declining parity.

"Considerable effort has been made since the commission's inception to raise growers' prices to where they can afford to practice new cultural methods developed through research," Mr. Ward said. "The modern filbert parity rating represents a price ceiling that prevents growers from realizing a net income justifying upkeep of their orchards and as a result some orchards are being neglected while others have been abandoned."

INSECT NOTES

(Continued from page 5)

are also present in a few areas. Protection from plum curculio is needed on all varieties of apples at the present period.

European red mites hatched rapidly during the period and populations in some of the orchards where no miticides were applied during the post-bloom period are high enough to warrant spray applications; for example, counts made from one local orchard on April 29 showed 16 adults, 90 nymphs and 25 eggs per 100 leaves.—D. W. Hamilton.

Miscellaneous Pests Noted in New Mexico

STATE COLLEGE, N.M.—Cowpea aphids are medium to heavy on seedling cotton in Dona Ana County. Control measures are necessary in most fields.

Spotted alfalfa aphid populations in alfalfa are generally light with medium-to-heavy spotty infestations reported in Dona Ana, Grant, Chaves, and Eddy counties. Infestations in seedling stands are still light, but should be closely watched for build-ups. Thrips are heavy in alfalfa fields in Dona Ana and Eddy counties, while pea aphids are light in alfalfa in Dona Ana, Eddy, and Grant counties.

Lygus bug nymphs are numerous in alfalfa and cabbage loopers are light to medium in lettuce fields in Dona Ana County. Most growers are controlling them. Loopers are very light in lettuce in Eddy County.

Cowpea aphids were medium to heavy on new growth on apple and pear trees in Grant County. The grower controlled them with malathion added to the calyx spray. Apples and pears in Dona Ana County are heavily infested.

Green peach aphids are light to heavy on peach trees in Dona Ana and Grant counties, while green bugs are medium to heavy and spotty in wheat and barley in Quay and Dona Ana counties.

Two-spotted mites are light to very heavy on arborvitae and juniper in Las Cruces. Arborvitae aphids are building up heavy populations on arborvitaes in Las Cruces.—John J. Durkin.

Walnut Growers Warned Of Growing Pest Problem

SACRAMENTO—Members of the Golden Empire Walnut Assn. were advised at their annual meeting that the insect problem is becoming increasingly important in walnut production.

Ray Munz, manager of the association's Yuba City processing plant, told the several hundred growers present that worm and codling mo infestations are increasing costs t ways. All nuts now going to the ce tral plant at Stockton, Cal., must fumigated, and penalties are bei assessed growers with infected pic ings.

James H. Bryce, central plant ma ager, pointed out that the associ tion and membership have been co centrating on attractive packagi instead of quality to sell their pro uct at a premium. One bad or worm nut in a package, he said, can destr all benefits of good marketing a advertising.

The association, affiliated with t state Diamond Walnut Growers Ass Inc., reelected Ed DaCosse and Llo Hensen of Yuba City, and Robe Pryor of Colusa, as directors. C. Sullivan, Yuba City, was named pre dent.

Michigan Chemical Directors Renamed at Annual Meeting

SAINT LOUIS, MICH.—At the a nual stockholders meeting of Mich gan Chemical Corp. held in Sai Louis, Mich. April 19, 1957 the follo ing members of the board of directo were reelected: T. C. Davis, pres dent, Centennial Development Co.; D. Frost, Frost, Blanchet & C Arthur J. Fushman, executive vi president, Manufacturers Nation Bank of Detroit; Donald D. Ma Farlane, attorney, Barbier, MacFa lane & Tolleson; Hugo W. Krave, a torney, a director of Wayne-Oaklan Bank, Detroit; Theodore Marvi chairman of the board and president J. H. McMullen, McMullen & Hard Willliam F. Mitchell, general man ager, Chemical Division, Genera Mills, Inc.; Clyde H. Reeme, pres dent, the Udylite Corp.; F. L. Va Lennep, executive vice president an treasurer, Castleton, Inc., and chai man of the board of Infra Electroni Corp.

The board was increased from te to twelve members. Edward A. Merk le, president of Pennroad Corp. an Glenn E. Taylor, Jr., treasurer Mergenthaler Linotype Co. are th new members elected to the board.

In his discussion of current bus ness of the company, Mr. Marvi referred to the start up of two ne plants—a bromine and bromide un at El Dorado, Ark. which is a joi venture with Murphy Corp., and the organization's rare earth facil ties at Saint Louis. The company pharmaceutical intermediates, br mine and magnesia compounds, a calcium chloride and salt are bei produced in increasing volume. Th DDT plant is in operation.

At the annual organization mee ing, the board of directors reelecte Mr. Marvin, president and chairma of the board; Fred A. DeMaestr vice president; R. J. Knapp, secr tary and treasurer; Josephine M. Cu tiss, assistant secretary and assi tant treasurer. Philip C. Cavanag was elected assistant secretary an assistant treasurer.

The corporation has announced n earnings after taxes of $164,418 f the first quarter of 1957 as compare to $45,363 for the similar period 1956. Sales for the first quarter we $2,015,497 for 1957 against $1,489,2 in 1956.

WEED DAMAGE

MADISON, WIS.—Weeds may do considerable part of their damage ju after crop plants emerge from th ground and before they're 4½ week old. At least that's the story with ca rots, beets and onions. As few three weeds per square foot cou cause serious damage in some cro during this period, according to r search by C. A. Shadbolt and L. Holm, University of Wisconsin hor culturists.

Fertilizer Trial Plot Helps Texas Dealer Increase Sales

Selling fertilizer in a new farming area is usually more difficult than selling in an established area. This is true in some areas of the Southwest where lack of moisture is a problem.

D. H. Davis, owner of the Davis Feed Store, Colorado City, Texas, found this out two years ago when farmers drilled irrigation wells to beat the drouth. An extra 15 to 20 inches of water did not increase yields as much as expected. Yet the owners had spent from $3,000 to $6,000 on their irrigation systems and were reluctant to borrow money for the purchase of fertilizer.

Mr. Davis knew that yields were too low on the irrigated land. Soil tests had revealed the land to be low in nitrogen and phosphorus. Fertilizer sales were very slow, and he knew that test plots must be used to convince farmers of the value of fertilizer.

Last year the local Kiwanis Club had a 10-acre plot on which the members planned to plant cotton, in order to raise money for a civic project. Mr. Davis knew such a plan would be worth more than a half dozen the store could put out, because it was not promoted by the fertilizer industry.

Mr. Davis and others engaged in agriculture talked with fellow members, and as a result the land was heavily fertilized. After harvest the club found that it probably had broken a county production record by producing two and a half bales per acre. This was almost unbelievable, and farmers throughout the trade territory heard the story. Now no one questions the value of fertilizer, and its use has climbed rapidly.

Since the results became known, Mr. Davis has been selling a lot more fertilizer. Practically every field in the county needs phosphorus and nitrogen, so his best sellers have become 16-20-0 and 10-20-0. Also along with it fertilizer attachments and other equipment are being sold.

"Now I'm wondering if fertilizer on dryland fields won't also pay off," Mr. Davis states. "Nobody thought it would, but last year one of our customers used it on dryland cotton and got good returns. I'm convinced that it will be profitable during normal years, so we're making an effort to get fertilizer on all cotton land."

In addition to selling fertilizer, Mr. Davis handles range and dairy feed, baby chicks and other farm supplies. He helped get 8,000 caged layers placed in the county, and more recently started an egg-for-broilers project near Colorado City.

Farmers are facing a crucial test, he says. To stay in business they must raise their income and make every acre produce its utmost. Any dealer who can help them do this will not only increase his own business, but he will also be contributing to the economy of agriculture and the nation in general.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Among the smaller businesses today close to 20% will have discontinued by the end of a year, predicts Dun & Bradstreet, Inc., in an informative booklet entitled, "The Pitfalls in Managing a Small Business."

Discontinuances are the result of many things: Reasons of health, changes in family situations and, what seems to be better opportunity, working for someone else. These are voluntary decisions to quit.

There are, however, other discontinuances which result from the inability or failure to make the business click. Things just don't work out. These are the failures, according to the D&B booklet.

Naturally, farm chemical retailers wish to avoid a discontinuance of their business. Some common pitfalls which lead to the discontinuance of a business are outlined in the booklet. They are:

Lack of experience; lack of capital; poor location; too much inventory, particularly of the wrong kind; excessive purchase of fixed assets; poor credit granting practice; personal expenses too high; unplanned expansion; and what might be called faulty attitudes.

These are the problems. What can be done about them?

1. Recognize Limitations. This is a primary consideration. Every business has limitations of some kind—even the biggest manufacturers find themselves limited to certain areas or to certain products. It isn't modest experience or modest capital that is the pitfall so much as trying to do more than the experience or capital will carry. When a limitation is recognized it can be reduced. A capital defiency, for example, can be helped by the prudent use of credit, pardeficiency, for example, can be helped to use the other person's money or merchandise with the same care that he uses his own.

2. Planning. After setting the limitations, it is necessary not to drift into things, but plan ahead. A business owner should write out the firm's policy on a piece of paper. He should write, "My policy regarding mark-ups shall be as follows . . . My policy regarding the kind of customers I wish to draw shall be as follows . . ."

3. Record Keeping. Enough records should be kept, but not too many. An owner can't spend all his time record-keeping—he has to sell. On the other hand, he must know where he stands. Many businessmen of long experience agree that if they were to start over again they would learn some bookkeeping or accounting to learn more from figures what's going on.

4. Watch the Balance Sheet—Not Just the Profit. The sales, gross profit, expenses and net profit are usually watched close enough by businessmen. But study of the balance sheet, particularly scrutiny of the liabilities, prevents mishaps. Liabilities are rock-like. When a business owner owes a dollar, he owes a dollar. Liabilities should be compared one year with the previous year. Trends in working capital should be studied. Net worth should be compared. The soundness of the firm should be reviewed every year.

5. Investigate. Sometimes it is better to say to a salesman, "Well, look, give me a day to think it over." Too many owners act first, then look afterwards.

6. Suppliers. One dealer said, "The best thing that ever happened to me is hooking up with a good supplier." A good supplier will help the retailer when he needs help most.

7. Learning. Learning as much as he can enables the owner to reduce his limitations. Business clinics help. Meetings with people in the same line are helpful. If a course is planned, one should be selected to provide exactly what is desired of the instruction. Bookkeeping can't be learned in a course on executive management.

8. Professional Assistance. Professional help can often overcome limitations. Accountants are in a position to give a different view of the business and may be able to tell the retailer whether he has the capital to expand or if a certain deal will work out.

9. Health. Because the small business is so dependent upon the activities of one or two people, the success or failure of a business may depend upon the energy and vigor of those people. Health is one of the vulnerable spots in the management of a small business.

RINGING THE CASH REGISTER

Use Related Item Table

Sales increase when items with related uses are displayed prominently. This is a fact which has been proven repeatedly in sales research. More customers will pick up and examine items from a related item display than from a display in which items are grouped separately. In one test, sales of items displayed separately were measured as a 100% base. When the same items were shown in a coordinated display, their sales rose to 278%. This theory can be proven in a farm chemical store by using a little imagination in setting up a related display table. The theme might be lawn care. Lawn seeds, fertilizer, chemical weed and insect control products, rakes, sprayers and hoses are some products which can be used. Displays with a lot of "sell" and color will attract added attraction. Use attractive signs, preferably with prices. You will be pleased with the sales results.

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

A dealer called me the other day and asked, "Where are you having your spring farm tour?" I told him that the next all-day tour would be with three dairymen. I told him we'd meet at the dairy barn, discuss the cows, artificial breeding, heifer production or developing, grain feeding, records and we would go to the pastures and hay fields, and there we would discuss, varieties, fertilization, disease and insects.

And do you know what he said? This is it and I'll give him 100%: "I won't go this time, but I am sending two of my salesmen along. They have never been on a farm tour with you fellows; I've always gone along, but I'll stay with the business that day."

I knew this man was a smart dealer, but he proved to be smarter than I thought he was.

We've had all kinds of tours during the past 15 years. We've had business men, industrialists, preachers, students and now I am thinking of asking the barbers. Why not?

I've asked many farmers, "Why do you people always trade at a certain place?" The answers were most interesting:

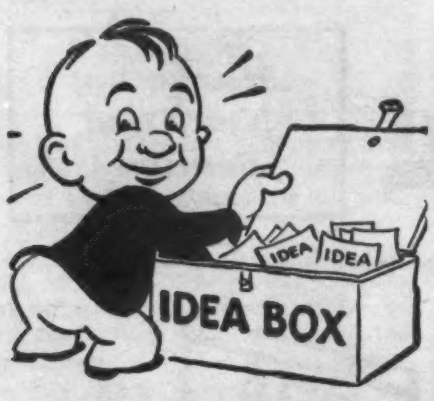
1. We have room to park. 2. He carries a variety (my wife always wants to go with me when I go to his place). 3. He carries garden seeds, insecticides, tools, fertilizer, plants and even roses. 4. All the clerks seem to be just as interested in our needs as we are ourselves. 5. He has bulletins from the experiment station on almost any subject. 6. He is interested in the total community. 7. He is interested in the welfare of each customer. 8. He keeps well posted. 9. He asks us if we have consulted with our county agent.

California Area Battles Grasshoppers

SACRAMENTO—War against the worst grasshopper threat since the 1953 infestation is being waged up and down California's rich Central Valley.

Grasshoppers are in hatching stages in western and southern foothills and preparations are being made in Kern, Kings and Fresno counties to halt their invasion into the lush crops of the great Central Valley. Spraying operations with poison diesel fuel mixtures are scheduled in Fresno and Kings county and a target date of May 1 was set for similar operations in the "hopper stopper" campaign in Kern County to the south.

Seldom Morley, Kern County agricultural commissioner, said a survey completed along the edges of cultivated fields revealed a population of three to 12 hoppers per square yard.



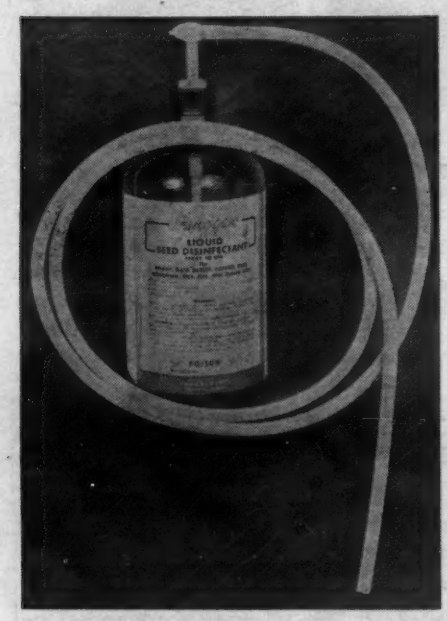
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 5702—Liquid Seed Disinfectant

Panogen, Inc., is distributing liquid seed disinfectant in small sizes for home treating. The liquid is available in pint, quart and gallon bottles. A liquid dispenser is designed for use with the bottles. The dispenser attaches directly to the bottle and delivers the correct amount of disinfectant to the seed being treated, company officials say. Full details will be mailed without charge. Check No. 5702 on the coupon and mail it to this publication.



No. 6576—Insecticides Bulletin

A technical bulletin of information about its Perthane insecticides has just been issued by the Rohm & Haas Co. Designated by the company as a formulation and labeling guide, it is of interest to formulators of agricultural chemicals. The bulletin contains suggested labels, giving directions for use of the product in controlling cabbage loopers, cherry fruit flies, leafhoppers and other insects. Also included are suggestions for formulating technical Perthane into dusts, wettable powders and emulsifiable concentrates. This bulletin number AG-82 may be obtained by checking No. 6576 on the coupon and mailing it to Croplife.

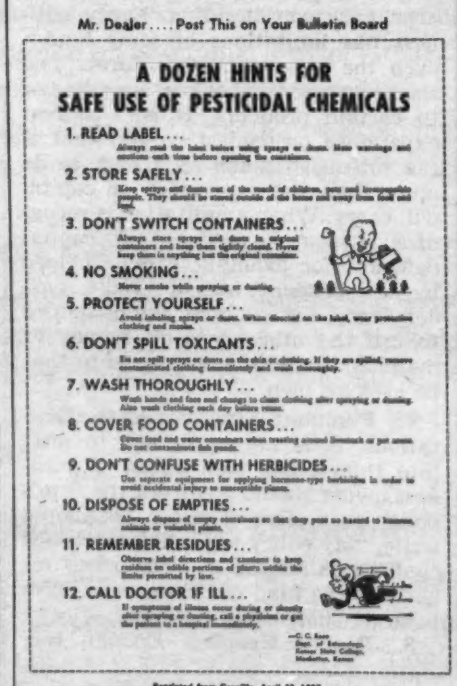
No. 5696—Conveyor

Details of a conveyor for conveying grain, chemicals, powder, liquids, scrap and other products have been announced by the R. T. Sheehan Co. Corrosive materials can also be conveyed by using stainless steel troughing buckets, according to the company. The length, width, and shape are adapted to suit the application.

The conveyor can be made portable or stationary and has a 14-in. minimum height from the floor. Company spokesmen claim that the elimination of troublesome hinges means savings in maintenance costs. Check No. 5696 on the coupon and mail it to secure complete details.

No. 6578—Safety Information Bulletin

A reproduction of the feature, "A Dozen Hints for Safe Use of Pesticidal Chemicals" which appeared in Croplife recently, is available to dealers. As illustrated here, it is printed


Mr. Dealer . . . . Post This on Your Bulletin Board

A DOZEN HINTS FOR SAFE USE OF PESTICIDAL CHEMICALS

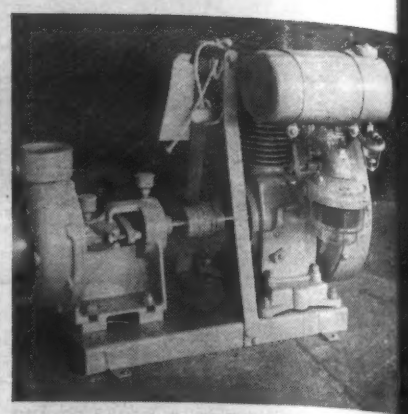
1. READ LABEL . . .
2. STORE SAFELY . . .
3. DON'T SWITCH CONTAINERS . . .
4. NO SMOKING . . .
5. PROTECT YOURSELF . . .
6. DON'T SPILL TOXICANTS . . .
7. WASH THOROUGHLY . . .
8. COVER FOOD CONTAINERS . . .
9. DON'T CONFUSE WITH HERBICIDES . . .
10. DISPOSE OF EMPTIES . . .
11. REMEMBER RESIDUES . . .
12. CALL DOCTOR IF ILL . . .

Reprinted from Croplife, April 22, 1957

on 8½ x 11 stock suitable either for hanging on a bulletin board or as a mailing piece to be sent to farmers in the dealer's community. Single copies are free. A nominal charge is made for quantities. (Quantity prices will be furnished on request.) Check No. 6578 on the coupon and mail it to Croplife.

No. 6569—Pump Units

The Nutra-Flo Liquid Fertilizer Equipment Co. is producing two pump units, one with a 2 h.p. motor capable of handling 50 gal. per minute and having a 50-lb. pressure, the other with a 1½-in. pump and a 3½ h.p. motor capable of pumping 150 gal. per minute. Both can be used for pumping non-corrosive liquid fertilizer, water and other normal uses for pumps. They are specifically designed for pumping liquids heavier than water. The shaft on each is stainless steel and the housings are of iron. In the picture here a gasoline engine is direct-mounted. Electric motors may also be used. Secure complete details by checking No. 6569 on the coupon and mailing it to Croplife.



Also Available

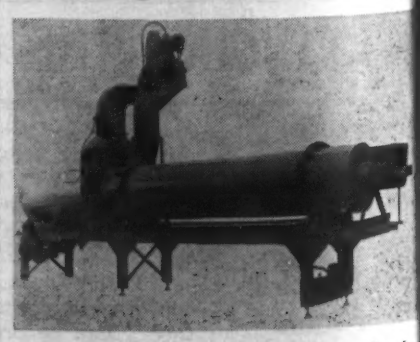
The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 5656—Loaders

A new line of tractor-mounted front-end loaders is announced by the Superior Equipment Division of Superior Pipe Specialties Co. The loaders feature a tubular frame, part of which acts as a hydraulic oil reservoir. Bucket rams are mounted so that they cannot "spring" and hydraulic piping is enclosed in loader arms for protection. The loaders can be mounted on most models of low silhouette four-wheel industrial tractors. Check No. 5656 on the coupon and mail it to secure complete details.

No. 5667—Rotary Dryer

Carpco Manufacturing, Inc., announces the production of "a compact and reliable dryer for efficient handling of granular material without loss of fines." Although the dual-flow rotary dryer was specifically designed for handling mineral salts, it is readily adaptable to a variety of products. The dryer "features a concentric fire-tube design which causes the gases to travel the full length of the dryer before contact with the material. This prevents any direct flame im-



(Continued on page 12)

Send me information on the items marked:

☐ No. 5656—Loaders	☐ No. 6562—Vibrator
☐ No. 5667—Rotary Dryer	☐ No. 6563—Growth Stimulant
☐ No. 5670—Folder	☐ No. 6564—Booklet
☐ No. 5672—Bag Conveyor	☐ No. 6565—Spray Equipment
☐ No. 5679—Feeder	☐ No. 6566—Nematode Chart
☐ No. 5696—Conveyor	☐ No. 6567—Weed Control
☐ No. 5702—Seed Disinfectant	☐ No. 6569—Pump Units
☐ No. 6558—Folder	☐ No. 6576—Insecticides Bulletin
☐ No. 6561—Folder	☐ No. 6578—Safety Bulletin

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

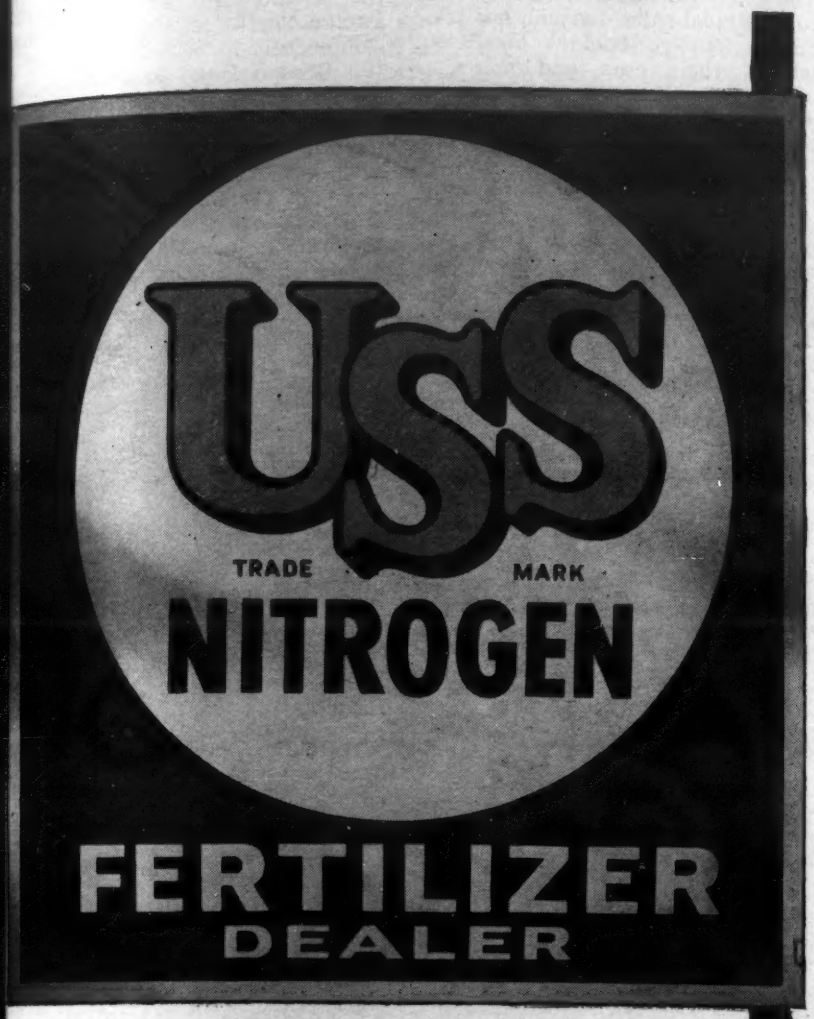
POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept. Minneapolis 1, Minn.

A new sign that's backed by



9 BIG SALES BOOSTERS!

Dealers in nine Western states are discovering that a USS NITROGEN FERTILIZER sign means big sales of USS Ammonium Nitrate, USS Ammonium Sulfate and USS Anhydrous Ammonia.

HERE'S WHY THEY'RE BUYING

Sales of these three high-grade nitrogen fertilizers are big for nine good reasons.

USS NITROGEN FERTILIZERS are:

1. **Advertised in state farm papers**
2. **Advertised over local radio stations**
3. **Advertised on TV**
4. **Advertised in local newspapers**
5. **Promoted through farm literature**
6. **Backed with expert agronomic service**
7. **Promoted through direct mail**
8. **Promoted through point-of-sales material**
9. **Promoted through demonstration plots**

This nine-point program can mean big sales of USS FERTILIZER for you, too. Find out how *you* can become a USS NITROGEN FERTILIZER DEALER. Send in the handy coupon, today. There's no obligation.

USS Nitrogen Fertilizers

CLIP AND MAIL

USS

Agricultural Extension
United States Steel
919 Kearns Building
Salt Lake City, Utah

Please send me free information on how I can become a USS NITROGEN FERTILIZER DEALER.

Name .....

Company .....

Street .....

City ..... State .....

UNITED STATES STEEL

WHAT'S NEW

(Continued from page 10)

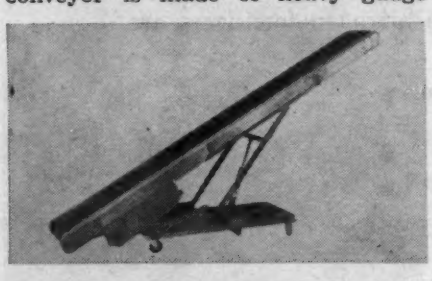
pingement and allows indirect heating by radiant means, with direct heating by hot gases only." Two models are available, one and two tons, respectively, per hour of bone dry product. In terms of water evaporation rates, the smaller unit will evaporate about 200 lb. of water per hour and the larger unit 400 lb. of water per hour. The dryers are furnished with oil burner, primary air blower, automatic temperature control, indicating pyrometer, exhaust blower, dust cyclone, positive displacement feeder and gear motor drive. Full data will be sent if you will check No. 5667 on the coupon and mail it to this publication.

No. 5670—Belt Treatment Folder

A folder on the "Talismanic" line of belt treatments has been prepared by the John C. Chambers Co. The company, according to the folder, has belt treatments for leather, rubber, canvas and rope drives. One treatment described is recommended for feed and flour mills, fertilizer plants and other plants where dusty conditions prevail. Other products described are special treatments for softening, preserving and cleaning. Secure the folder by checking No. 5670 on the coupon and mailing it to this publication.

No. 5672—Bag Conveyor

A new aluminum bag conveyor is being offered by the Burrows Equipment Co. The Burrows "A-Series" conveyor is made of heavy gauge



aluminum alloy and has a 12-in. three-ply "Rib-Flex" belt. It is available in lengths from 10 to 18 ft. The unit can be furnished with three different hydraulic lifts and is made to fold for quick storage in small areas. For further details check No. 5672 on the coupon and mail it to this publication.

No. 5679—Belt Type Feeder

"Advanced-design features of the new Hi-Weigh model 37-20, belt type gravimetric feeder developed to meet modern industry's need for an accurate, durable, medium to high capacity dry material feeder are described in a colored, four-page bulletin," announce officials of the Omega Machine Co., a division of B-I-F Industries, Inc. Sections describe the advantages, principles of operation and Sens-A-Gram mechanical controller of the feeder. Dimensional and performance specifications are also given. The bulletin is illustrated with cutaway views, halftone illustrations, and typical installation photographs. The feeder is designed to feed more than 3,000 lb. per minute. Secure the bulletin by checking No. 5679 on the coupon and mailing it.

No. 6558—Folder on Rose Treatment

A new folder entitled, "Control Powdery Mildew on Roses With New Acti-dione PM," has been prepared by the Upjohn Co. Acti-dione PM is an antibiotic fungicide which is claimed to kill the existing growth of mildew. It can be applied with a hand sprayer or with a power sprayer at up to 400 lb. p.s.i. Contents of one package make 12½ to 25 gal. of spray depending on the treatment desired. The formula is compatible with a number of fungicides and insecticides but is not compatible with lime or other highly alkaline materials. Check No. 6558 on the coupon to secure complete details.

No. 6561—Nursery Weed Control Folder

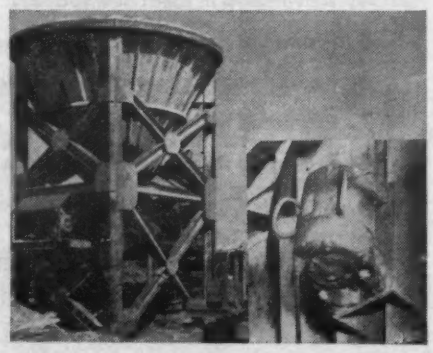
A new folder with 15 questions and answers about the use of the herbicide, Crag Sesone, on nursery plants has been issued by Carbide & Carbon Chemicals Co., a division of Union Carbide & Carbon Corp. The folder gives reasons why nurserymen should use Sesone, formerly called Herbicide-1, for weed control on nursery stock, and are told how and when to apply the spray. Irrigation, spray equipment and the various plants for which the product is recommended are also discussed. To secure the folder check No. 6561 on the coupon and mail it to Croplife.

No. 6567—Weed Control

A new folder entitled, "Control Perennial Weeds and Grasses With Pennsalt Sodium Chlorate," has been produced by the Pennsylvania Salt Mfg. Co. of Washington. The product can be applied either as a spray or as dry crystals, states the folder. The product is packed in 100-lb. steel containers. The folder lists product description, general information, directions for use, application rate charts and cautions in using the product. Secure the folder by checking No. 6567 on the coupon and mailing it to Croplife.

No. 6562—Vibrator

Cleveland Vibrator Co.'s RC-50 is the model in use at the Davison Chemical Company's Bartow, Fla., plant and full details about its operation are available. The vibrator is de-



signed so as to provide constant, forceful vibration of material in bins made of structural steel and plate iron. The vibrator operates on the rotating eccentric weight principle and is claimed to operate continually with a minimum of noise. A dustproof housing is another feature of the company's line of electric vibrators. To secure complete details check No. 6562 on the coupon and mail it to Croplife.

No. 6563—Plant Growth Stimulant

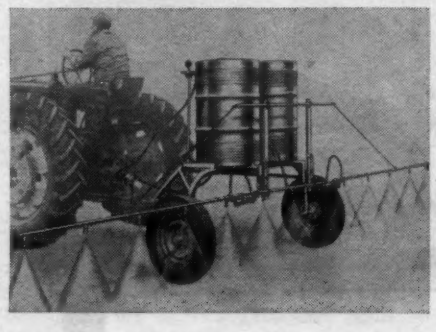
Merck & Co., Inc., chemical division, has prepared a new folder on its product trade-named, "Gibrel," a plant growth substance which belongs to a family of relatively new chemicals, the gibberellins. The folder states that the substance "can increase plant size up to three times over normal, break dormancy and apical dominance, advance flowering time, bring about earlier seed production, eliminate transplanting shock and improve fruit set." Investigations on the substance have been completed on a number of flowers and ornamentals. A wide variety of applications are under study, the folder states. Secure the folder by checking No. 6563 on the coupon and mailing it to Croplife.

No. 6564—Agricultural Chemicals Booklet

The Shell Chemical Corp., agricultural chemical sales division, has prepared a 32-page booklet about its products, their crop and non-crop uses and equipment for applying them. The booklet is "designed to be helpful in answering questions about aldrin, dieldrin, endrin, D-D, Nemagon and allyl alcohol." Additional booklets that go into more detail about chemical pest control on specific crops are listed. To secure the booklet check No. 6564 on the coupon and mail it to Croplife.

No. 6565—Spray Equipment

Details of its new "Field Master" line of spray equipment have been announced by the Broyhill Co. The line includes the model FM-1 boom sprayer, the model FM-2 boomless sprayer and the model FM-3 hand gun kit and boomless sprayer. The boom sprayer is a 6-row, 21-ft. "stainalized" boom with 13 "TeeJet" nozzles and 4-way hinge flexibility. The trailer is



equipped with 15-in. wheels and two 55-gal. drums. A 115-gal. capacity steel or aluminum tank is optional equipment. The pump unit includes a "Hypro 6200" pump and torque chain, suction screen, 200-lb. pressure gauge, by-pass valve and single control valve. To secure more information about the "Field Master" line check No. 6565 on the coupon and mail it to Croplife.

No. 6566—Nematode Chart

The Shell Chemical Corp. has available a nematode chart in black and white, 8½ by 11 in. The chart is available to those interested in nematodes. Secure it by checking No. 6566 on the coupon and mailing it to Croplife.

Treatments Tried To Reduce Salt Content of Soil

YSLETA, TEXAS—The addition of gypsum, sulphur and other soil amendments is being tried on some of the salty fields at the Ysleta Experiment Station in hopes of reducing the salt content of the soil.

A few years ago when the drouth reduced the Rio Grande to a mere trickle, farmers began drilling irrigation wells. Water was plentiful but some of it was salty; and as water tables decline, the salt content becomes greater. As a result many fields are lying idle, while other produce at only half capacity.

Don Longnecker, agronomist at the station, says the work was started last year. He not only hopes to find some chemical that will lick the salt problem, but also will be checking closely to see which one will raise cotton yields.

Some of the farming area downstream from here has been abandoned because of salty water. In Hudspeth County where 20,000 acres were once under irrigation, only a third as much land will be in cultivation this year. Many farm homes have been abandoned, while the fields grow up in worthless thistles and salt grass.

Program Announced For Pacific Northwest Fertilizer Conference

PORTLAND, ORE.—Tours, talks and a roundtable discussion are on the schedule for the eighth annual Pacific Northwest Regional Fertilizer Conference, to be held June 26-28 at the Benson Hotel here. The conference is being presented by the Pacific Northwest Plant Food Assn.

According to Leon S. Jackson, association secretary, the conference will get underway the morning of June 26, with H. B. Cheney, head of the Oregon State College soils department, as chairman. The session will include talks on:

"Nitrogen and Sulfur Relationships on Wheat," by R. W. Harder, University of Idaho; "Possibilities of Using Fertilizers by the Forestry Industry," by Stan Gessel, University of Washington; and "Results from Potato Fertilizer Experiments in Central Oregon," by M. J. Johnson, Central Oregon Experimental Area, Oregon State College. Also planned for this session is a speaker from the National Plant Food Institute.

On the June 26 afternoon schedule is a field trip to the Red Soils Experiment Station near Oregon City and the Southwest Washington Experiment Station at Vancouver.

B. R. Bertramson, chairman of the Washington State College department of agronomy, will be chairman for the June 27 morning program. It will include:

"General Discussion Concerning Lime and the Interrelationship of Lime and Fertilizer Use," Dr. Cheney; "Summary of Information on Lime Needs and Responses in Western Oregon," T. L. Jackson, Oregon State College; "Summary of Information on Lime Needs and Responses in Western Washington," W. B. Mortensen, Western Washington Experiment Station; "Pasture Fertility Work on Vancouver Island," H. Gardner, Sannichton Experiment Station," Vancouver Island; "Pasture Fertility Work in Western Washington," D. Turner, Western Washington Experiment Station; "Molybdenum and Lime Interactions," H. M. Reisenauer, Washington State College, and "Response from Nitrogen and Phosphorus on Forage Crops in Northeastern Oregon," H. E. Cushman, Oregon State College.

A field trip to the association's demonstration farm in Washington County, Oregon, will be held the afternoon of June 27, and the conference banquet will be held that evening.

A technical conference is scheduled for the morning of June 28 with G. C. Baker, University of Idaho department of agronomy, as chairman. It will include a roundtable discussion on diagnosing soil fertility problems with leaf analysis and soil test.

Talks scheduled during this morning session include "Testing Soils for Lime Requirements," L. A. Alban, Oregon State College; "The Effect of Different Sources of Nitrogen on Soil Reactions and Distribution of Exchangeable Bases," C. D. Moodie, Washington State College, and "Soil Testing Program in Washington," G. Nelson, Washington State College.

RUTGERS FIELD DAY

NEW BRUNSWICK, N.J.—Research of interest to crops and livestock farmers will be shown and explained at a crops and livestock field day, June 28, at the experiment station, Rutgers University. Dr. John Anderson, research specialist in farm crops, chairman of the field day committee, said that the day will begin with inspection of the radioisotope laboratory at the rear of Lipman Hall. Visitors then will hear about such things as topdressing winter grains, seedling establishment, wafer drying of hay, digestion trials, and equipment for irrigation experiments. Weed control results also will be shown.

Weed problem?

Broadleaf or annual grasses? . . . expensive hand labor and hand hoeing? . . . or, costly cultivation and late harvests?

ALANAP is Naugatuck's selective, pre-emergence weed killer . . . for control of weeds in asparagus, cotton, cucurbits, peanuts, nursery stock and soybeans. ALANAP will not evaporate from the soil surface. It cuts down costly hand labor and hand hoeing . . . minimizes the number of necessary cultivations and, by keeping your crops weed-free, you can harvest earlier and faster with less dockage. With ALANAP you have fewer weed problems, better yields, with less effort.

REMEDY: USE

ALANAP®

pre-emergence selective weed killer!

what should be advised for soil fungi and seed decay?

Naugatuck's SPERGON! SPERGON prevents seed decay, "damping off" and many other fungous diseases so rampant during cold, wet planting weather. *4 to 6 bushels per acre* average yield increases have been obtained with *Spergon-treated* seed. And SPERGON lubricates seed for less planter breakage and easier planting. Excellent for foliage spray, cabbage, lettuce and other crops.

REMEDY: USE

SPERGON®

seed protectant!

Weed problem?

Broadleaf or annual grasses? . . . expensive hand labor and hand hoeing? . . . or, costly cultivation and late harvests?

ALANAP is Naugatuck's selective, pre-emergence weed killer . . . for control of weeds in asparagus, cotton, cucurbits, peanuts, nursery stock and soybeans. ALANAP will not evaporate from the soil surface. It cuts down costly hand labor and hand hoeing . . . minimizes the number of necessary cultivations and, by keeping your crops weed-free, you can harvest earlier and faster with less dockage. With ALANAP you have fewer weed problems, better yields, with less effort.

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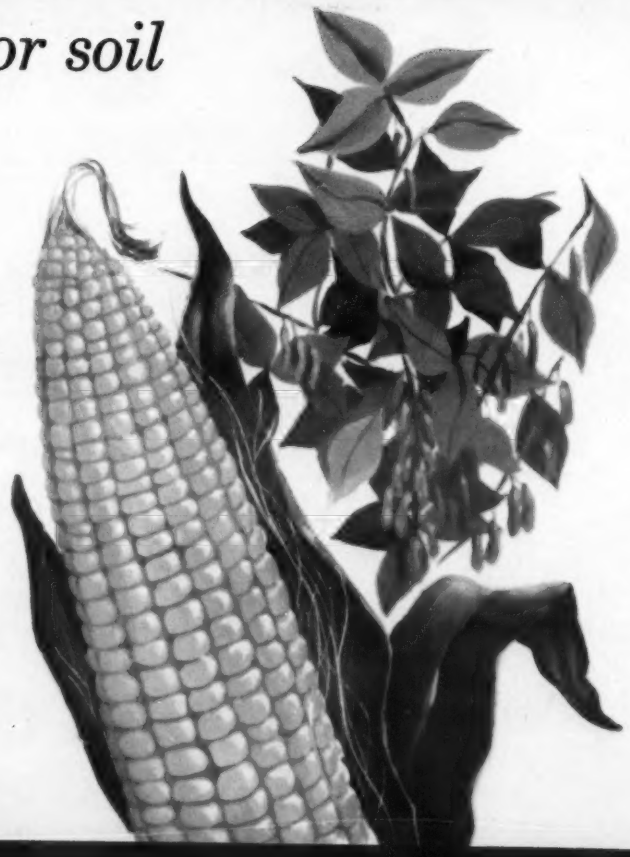

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REMEDY: USE

SPERGON®

seed protectant!

ling with fruit drop?
lower setting?

tuck's DURASET is a unique
al when used as a fruit set or
eventing fruit drop in lima
Experiments on tomatoes,
erries, peppers, apples, and
eeded legumes show
ing results with DURASET.
o use as an over-all spray.

MEDY: TRY

URASET®

ver and fruit-setting hormone! have you tested Duraset?

at to do about fungous diseases
fruit trees and row crops?

ON, the cheapest, most effective organic
ide available—for inexpensive control
ple scab, peach brown blossom blight,
o blights, mint rust and other diseases.
ON is also a powerful algae killer in
ion and industrial water systems.

MEDY: USE

HYGON®

Send this COUPON NOW

All of these products are available in large-quantity sizes. For more information on these products write Mr. O. P. Steinen, Sales Manager, Naugatuck Agricultural Chemicals, Naugatuck, Conn.

I am interested in product booklets and samples concerning the following chemicals. Would you send me the following information:

CHEMICAL **CROP** **ACREAGE**

_____

_____ _____

_____

_____

Also send ☐ Booklet ☐ Price

Name_____

Company_____

Address_____

City_____ Zone___ State_____

Send this COUPON NOW!

how do you get rid of mites in...

Citrus? Cotton?...

and many types of fruit and vegetable crops, nursery stock and shade trees? Compatible with most commonly used insecticides and fungicides, ARAMITE assures better crops, higher profits. ARAMITE kills more mite species than any other control and is the most widely used specific acaricide in the United States.

APPLY

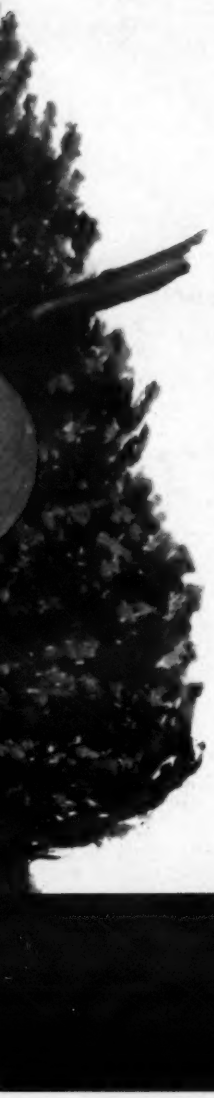
ARAMITE®

the mighty miticide!

rely on Naugatuck agricultural chemical spe

Send for these

colorful, illustrated product bulletins and booklets. They have been designed to show Naugatuck's specifically-developed chemicals for specific crops. Please let us know what crop problems you have. Use the handy attached coupon.



specialties

tear out this handy Chemical Guide to bigger crops, bigger profits! Keep it handy!

what's your

CROP PROBLEM?

Tobacco sucker control?

Costly plant-to-plant hand suckering necessary to improve the quality and quantity of tobacco leaf? With MH-30, increases of 100 to 200 lbs. per acre is the average result.

Naugatuck's famous growth retardant, MH-30, prevents repeated and costly hand suckering. Only one MH spraying by one man is required per season to prevent suckers from sapping your finest leaves of needed nutrients.

Sprout Control?

MH also insures top market price for potatoes and onions — even after many months of storage. Weight loss and spoilage is greatly reduced. Sprouting does not occur even when they are stored at home at high temperatures . . . they stay whiter and firmer longer.

Quack grass?

MH eliminates quack grass growth in land devoted to high-value crops. Any crop can be planted immediately following MH quack grass control.

REMEDY: USE

MH

growth inhibitor, suppressor and eradicant

Reg. U. S. Pat. Off. Nos. 2579954 2614916 2614917

United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

Doing Business With

Oscar & Pat

Bob Cadle was a farm chemical salesman, a medium sized chunky fellow in his late twenties, and already he was balding. Usually he was a slow moving fellow, but this morning, he came rushing into the Schoenfeld & McGillicuddy showroom, hatless, and with an excited gleam in his brown eyes.

"Hello, Oscar," he said, hurrying up to the railed in enclosure of the office. "Where's Pat? I've gotta see him right away."

Oscar turned cold eyes on the salesman, then switched his glance to the big 8-ball on his desk, then to the sign on the wall, with copy reading "Silence Is Golden," and then back to Bob Cadle again. His meaning was clear.

"He's out," he announced calmly. "And we don't need anything in your line today. In fact, we will not need anything for a long time. We are pulling in our horns a little bit. Things don't look so good."

Bob Cadle looked disappointed. "Gosh, I just have to find Pat. I've got such a wonderful idea to tell him. It came to me just a few minutes ago at the Slide Inn where I was having a cup of coffee. A guy was telling the owner how he always had so much fun talking to his dog. Even talked to him when he had the blues, and he said it helped. Then the idea hit me just like a ton of tomatoes, right in the face. Wow!"

"Pat may not come in before night time," Oscar announced coldly, glancing at his discount work. "Better not wait. You'll be wasting your time."

The salesman groaned. "But, you fellows are just the boys who could use my idea. It's red hot, hotter 'n rock and roll for the retail fertilizer industry. Pat could see it in a minute. I know he'd go for it."

"Ach, Pat sees too many things," Oscar said bitingly. "Better he should see less and stick to the job and get something done once in a while."

Bob Cadle bit his lip. "I just gotta tell somebody about my idea, Oscar. I've gotta tell you. And, Tillie, you can listen, too, if you want to."

Oscar offered no encouragement. In fact, his broad face mirrored extreme irritation.

But Bob Cadle was charged with the enthusiasm of those who have an idea speeding around in millions of brain cells. "You see, Oscar, it's like this," he said excitedly. "A lot of retail fertilizer dealers are advertising the conventional way, the same stuff all the time."

"They advertise too much," Oscar said laconically. "Especially that frisher partner of mine."

"Now, the thing to do," went on Bob Cadle, "is to hit the reader right between the eyes with a new, dramatic idea. And I've got it."

Oscar looked very puzzled; in fact, he looked almost disgusted.

"When that guy in the restaurant was telling about how he talked to his dog all the time, I got my idea. Why not have a couple of insects talk to each other, like a couple of corn borers on a honeymoon?"

"Corn borers on a honeymoon!" echoed Oscar, jarred out of his boredom. "Cadle, you should have your head examined. Ach, such foolishness."

Tillie Mason, the plump, ulcerish bookkeeper snickered, but Cadle didn't notice.

"It's not foolishness, Oscar. Suppose you and Pat ran a big ad telling how a couple of corn borers settled down on a nice patch of corn for their honeymoon and started boring and eating. They could talk to each other, you know, crazy sweetheart stuff. And the groom could tell his wife that they would have good eating here and raise a lot of little corn borers, and then maybe they would invite all their relatives some Sunday for a big corn borer picnic in this huge cornfield."

Oscar's face was a dull red. "Ach, du Lieber, you are crazy!" he said. "Quit it. I have work to do." And he turned to his discount papers.

"Wait a minute, Oscar, there is more to it," pleaded Cadle. "Then mama corn borer would tell her husband she had found some round stuff in the corn joints, stuff that tasted good, but a little salty, and she invites her hubby to eat it, too. He does and they both drop dead. It's corn borer granules, Oscar, and then those two borers drop dead. And when they are dead, gone are all their dreams of little corn borers and that big party of relatives. That's the way to dramatize the corn borer spray story, Oscar."

"Nein," Oscar said firmly. "You should drop dead, too. Leave me alone. I've got work to do."

For the first time Bob Cadle looked crest fallen. Then when he looked at Tillie and saw she was interested, he moved toward her desk. "Oscar and Pat can carry this insect-talking idea right through the summer and farmers will like to read about it. It will be dramatic copy. Gypsy moths can talk to each other, so can cutworms, potato bugs, pea aphids and lots of other insects. Then farmers can see how insecticides can make short work of insects. Don't you think so?"

"It certainly is a new approach," Tillie agreed. "But would you have poison ivy talk to poison ivy, too?"

Bob Cadle thought for a moment. "Why not?" he said. "Believe me, this sort of personalized approach to advertising would give Oscar and Pat more readers. Their advertising dollars would get more results—and that is what they want. Say," he said suddenly, "I'll bet insects can talk to each other."

Tillie's eyes were wide. "You really think so?"

Cadle looked puzzled. "Well, they must . . . How—how else could an insect propose to another insect and raise a family. There must be some sort of communication, some—"

There was a squeaking of a swivel chair. "Ach, it is time for me to go to lunch!" Oscar said. "Und, Cadle, if it is any news to you, the insane asylum is in the next county—just 15 miles away. Good bye!"

University of California Gets Research Gifts

BERKELEY, CAL. — Two gifts each for $4,000 topped a list of financial grants made to the division of agricultural sciences of the University of California in January to promote a series of studies of chemicals as applied to agricultural usages.

One of these gifts and two others were allocated to the Riverside campus of the university for a lysimeter project of soils research program. The California Fertilizer Assn. gave $4,000 for this purpose, Stauffer Chemical Co. gave $1,000 and the Westvaco Mineral Products Division of the Food Machinery and Chemical Corp. made a further grant of $500, for a total of $5,500 for the lysimeter project.

E. I. du Pont de Nemours and Co. presented $4,000 for a research study on foliage sprays of Nugreen fertilizer on this campus, and the California Avocado Society gave $1,000 for a root rot study project.

A sixth gift of $2,500 was made by Brea Chemicals, Inc. for a research project on the nitrification of nitrogen fertilizers, underway on the Davis campus.

Stauffer and Brea joined with eight other chemical manufacturers making additional presentations to the university of agricultural chemicals themselves to assist in a variety of studies taking place on several of the campuses.

Potash Produces Added Potato Yields In California Tests

SAN MARINO, CAL.—Potash fertilizer has produced significant additional potato yields in potash deficient areas of the Santa Maria Valley, according to the California Fertilizer Assn.

Dr. O. E. Lorenz, professor and vice chairman of the department of vegetable crops, University of California, conducted a series of six fertilizer tests on potatoes in that area in 1956. In each of the six fields there were four plots of each fertilizer treatment. The potatoes were grown and harvested according to the growers' usual methods.

Dr. Lorenz' report said: "Potash fertilizers produced significant increases in yield in four of the six tests. In one field on a Pleasanton sandy loam soil, considerably higher yields were obtained from applications of 200 lb. per acre or more of potash than from only 100 lb. In this same field, the yield was practically doubled by applying 100 lb. per acre of potash as compared to none.

"An average of all fields showed plots without potash to yield 301 sacks per acre as compared to 345, 362 and 373 for plots receiving 100, 200, and 400 lb. per acre of potash, respectively. All of the test fields located east of Santa Maria gave yield increases from potash fertilizers and only one field out of three on the west of Santa Maria responded to potash fertilizers."

Herbicide Demonstrations Set Up in Illinois

URBANA, ILL. — Illinois farmers will be able to observe many of the new weed control chemicals in action this summer and fall.

Earl C. Spurrier, University of Illinois extension agronomist, has reported that farmers in 58 counties would carry on 165 different demonstration tests this year. In 1956, farmers in 43 counties cooperated and results were collected at 77 locations. About 2,350 farmers attended field meetings on these test plots.

Mr. Spurrier announced that demonstrations and tests would be made with Randox, Dowpon, DNPB (dinitro), amino triazole. (ATA) and 2,4-D.

Official Lists Ten Worst 1956 Insect Pests in Oregon

PORTLAND, ORE.—Joe Capizzi, Oregon State department entomologist, recently released the annual listing of the state's 10 most important agricultural pests.

The inclusion of a given insect or insect group on the lists is based on the importance of the pest, rather than the crop. Using this criterion, pests of any one major agricultural crop cannot dominate the selections. No attempt was made to rank the pests in the order of their importance.

Three pests which appeared on the 1955 list of the 10 most damaging crop insects are lacking this year. They are root weevils, grasshoppers and the Douglas fir beetle. In their place are the alfalfa weevil, mountain pine beetle and onion maggot. The list follows:

Alfalfa weevil (Hypera postica)—This is a threat to the alfalfa industry. The Oregon infestation last year was considerably larger than in previous years. On this list it replaces in importance the root weevils which damage berries and ornamental seedlings.

Aphids—Several species are involved, and as group aphids stand at or near the top of the list because they cause many types of injury. Some of them spread virus diseases. They spread rapidly but may be controlled by constant use of insecticides.

Cherry fruit fly (Rhagoletis cingulata indifferens)—This is still a pest of great importance to the state's $4,000,000 (1956 value) cherry industry. Because of it, a spray program is necessary for commercial harvest of cherries.

Codling moth (Carpocapsa pomonella)—This is held in check by a concerted spray program in the commercial apple orchards. Otherwise, it would put a deadly finger on the $7,000,000 apple industry.

Mites—Several species are involved here. They are especially serious on fruit and nut trees, on ornamentals and in the greenhouse. They are about the size of aphids and multiply rapidly.

Mountain pine beetle (Dendroctonus monticolae)—This replaces the Douglas fir beetle which is declining to a normal level.

Onion maggot (Hylemya antiqua)—This pest moves into the 10 most unpopular because of damage in all commercial onion growing areas. Last year the value of onions produced in Oregon was $2,600,000. Unless the maggot is controlled, it threatens the industry.

Pear psylla (Psylla pyricola)—This continues to be a threat to the state's $21,500,000 pear industry. Where it is found, damage may be held in check by control programs—but this is an expense to growers.

Spruce budworm (Choristoneura fumiferana)—This is the chief defoliator, but the 1956 infestations are down slightly to 536,120 acres. Infestations are light, though populations are on the increase in the Umatilla, Malheur and Wallowa-Whitman national forests.

Symphylids (Scutigerella immaculata)—These soil-living pests continue to demand increased attention. They are particularly damaging to commercial truck crops and small fruits—and unusually hard to control.

NEW SEED FIRM

PORTLAND, ORE.—Frank A. Mangelsdorf Co., a new field seed brokerage and marketing consulting business—including advertising and public relations—has been formed with offices at Lake Grove, Ore. Mr. Mangelsdorf was formerly field seed department manager for Balfour, Guthrie and Co., Ltd. here. Before that he was advertising director and assistant sales manager for Advance Seed Co., Phoenix, Ariz. Prior to working in Arizona, Mr. Mangelsdorf worked for his father, Frank M. Mangelsdorf at the Mitchellhill Seed Co., St. Joseph, Mo.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Last year's agricultural loss attributed to corn borers is estimated by USDA at $119.5 million. This represents about 3% of the total corn crop. Despite the heavy loss in 1956, it was less than that of the previous year when 155 million bushels of corn were lost. The 1956 loss was 98 million bu.

That microorganisms in a cow's rumen may be able to detoxify some insecticides, thus making them harmless, was suggested by the results of experiments conducted by the University of Wisconsin. It was pointed out that if further research bears out these early findings, it could mean the removal of a hurdle standing in the way of approval of certain systemic organophosphate insecticides on forage crops. It might also mean that several presently-used insecticides can be used on forages with fewer precautions as to spraying date.

Dr. Firman E. Bear, retired head of the soils department at Rutgers University, New Brunswick, N.J., told the fifth California Fertilizer Conference at Fresno that the long-term prospects for feeding the expanding population of the U.S. is good. The application of plant food materials plus widespread irrigation can compensate for the increasing numbers of people in the nation, he said.

An explosion and fire at Monsanto Chemical Company's Nitro, W.Va. plant resulted in five casualties and the hospitalization of a number of additional persons. Financial loss was estimated at $1 million. The plant's production of methyl parathion insecticides will be halted for several months and of ethyl parathion for as much as six weeks.

Consumers Cooperative, Kansas City, Mo., bought a 40% interest in Missouri Farmers Assn.'s ammonium phosphate fertilizer plant at Joplin, Mo. Annual capacity of the plant is set at 70,000 tons. A pipeline connects it with a sulphuric acid plant owned by Eagle-Picher Co. at Galena, Kansas.

Coastal Chemical Corp. announced that it will construct a sulfuric acid plant at Pascagoula, Miss. as part of its fertilizer installation under construction.

The U.S. Department of Agriculture announced results of experiments with its new herbicides, 4(2,4-DB) and 4(MCBP), both of which demonstrated value as supplements to herbicides presently in use by farmers. In tests made in 1955 and 1956, the new materials were used for weed control in seedling legumes and certain other crops.

Some 1,840 acres of lands in Eddy County, New Mexico, were released by the U.S. Dept. of the Interior for competitive leasing as potash-mining developments. The area is in the vicinity of Carlsbad where a number of potash operations are already established.

Gibberellic acid materials were tested by the New York Agricultural Experiment Station, Ithaca, N.Y., to stimulate the growth of red kidney beans so they may be harvested in a single operation. Success of the technique would aid in mechanical harvesting methods which in turn are more economical than other means.

Three aerial sprayers were awarded contracts to apply 2,400,000 gallons of DDT-oil mixture in three northeastern states in the cooperative federal-state gypsy moth eradication program. The contracts totaled $1,750,000. Aerial applicators receiving contracts were Lebonair, Inc., Lebanon, Pa.; Chris D. Stolzfus, Coatesville, Pa.; and Roberts Aircraft, Boise, Idaho. The applications are to be made in New York, Pennsylvania and New Jersey.

Growers of vegetables are expected to use no lesser amounts of pesticidal materials this year despite smaller acreages involved. The reason for this optimism was outlined by Lea S. Hitchner, NAC Assn. secretary who said that reductions in the output of certain vegetables would be offset by larger plantings of other crops which would probably result in good pesticide sales.

A permanent field station for research on nematode problems, especially the soybean cyst nematode, will be established by USDA at Jackson, Tenn.

The Middle West Soil Improvement Committee organized a Minnesota branch at an organizational meeting in Minneapolis April 9. Function of the new group will be to serve as liaison for the manufacturer, dealer, the university and the consumer to further the use of fertilizer.

USDA's three-year study to find a carrier of wheat streak-mosaic virus resulted in finding the wheat curl mite guilty of this role. The search was made by USDA in cooperation with the Kansas and Nebraska agricultural experiment stations.

The American Potash Institute announced that North American deliveries of potash in 1956 by the seven leading American producers amounted to the equivalent of 2,307,961 tons K_2O, an increase of 4.7% over 1955 deliveries. Agricultural deliveries in the continental U.S. in 1956 totaled 1,872,704 tons K_2O, down 5,885 tons from the 1955 figure.

The North Central Branch of the Entomological Society of America, meeting recently in Des Moines, Iowa, heard discussions on recommendations for the 1957 season. Entomologists expressed doubts about how recommendations could be made that would be adequate for insect control and at the same time assure growers that no illegal residues would remain on crops at harvest time. The meeting was attended by some 350 persons from 14 midwestern states.

The plant food industry may have as good or better business in 1957, compared to last year, despite soil bank operations of USDA. Prospects for additional sales in the corn belt were seen to be greater than tonnage losses expected in cotton crop applications.

The U.S. Department of Agriculture announced plans for a spray program to eradicate the gypsy moth from almost 3 million acres of forest land in New York, New Jersey and Pennsylvania. Area-wise, it will be the largest single aerial spraying job ever conducted in the United States, USDA said.

FARM SERVICE DATA

Extension Station Reports

Regular use of fertilizer containing nitrogen, phosphate and sulfur will materially increase production per acre of meat on much of California's range land, according to the California Fertilizer Assn. The statement added that this use of fertilizer will increase the animal carrying capacity of each acre, thus increasing the net profit returned to the stock rancher.

Fixed charges, including taxes, interest or rent on the land, fencing and maintenance, etc., remain the same, and the association says that a nominal investment in fertilizer and its application will often double the carrying capacity of the range, and the meat production as well.

The association points to the findings reported in the third progress report of the University of California, Agricultural Extension Service, on 16 grazing tests on annual range during the 1955-56 season. Those tests were conducted on field-size plots in Alameda, Fresno, Glenn, Lake, Madera, Marin, Placer, Sacramento, San Joaquin, Shasta, Solano, Sonoma and Yolo counties.

The report is quoted in part—"The most striking and consistent results in the entire series of range fertilizer plots and demonstrations have been the fact that supplemental nitrogen fertilizers stimulate early and continued winter and early spring growth of annual grasses. These responses have occurred during the cold season when little growth would normally be expected. Nitrogen appears to be the key to early growth, but was effective only if adequate phosphorus and sulfur were present or were applied in the fertilizers used."

Another quotation from the report—"It is possible to provide nitrogen and phosphorus out of the fertilizer stack to make up the deficit induced by cold weather and spring temperatures. By this means grasses can be encouraged to grow in much of our winter range when they do not do so normally."

The report stated that in three sheep grazing tests in Lake and Marin Counties, range carrying capacity and meat production were both about doubled by fertilizer treatment. Feed came earlier and earlier stocking was possible.

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Colorado A&M scientists are continuing tests to find effective herbicides for control of grassy weeds in sugar beets. They say that once growers can safely apply a chemical spray to control the in-the-row weeds, particularly the grassy varieties, sugar beet production will be completely mechanized from plowing through harvest.

Fourth year tests for chemical controls will get under way this spring at several locations near Fort Collins. Members of the botany and plant pathology staff are conducting the experiments under the direction of Dr. Jess Fults, chief botanist for the experiment station.

Primary targets in the control campaign, Dr. Fults says, are green pigeon grass, volunteer small grains and wild oats. When they grow within inches of the beets, in the past it has been impossible to control them except by slow and costly manual methods.

The trick is to develop a spray or soil treatment that will kill the weeds but won't injure the beets, Dr. Fults says. In previous tests, various chemicals were applied before planting as well as four weeks afterwards.

Several sprays show promise. They are Dalapon (dichloropropionic acid), DCU (dichloro urea) and TCU (trichloroacetic acid). Coincident with the weed trials, scientists are testing the effectiveness of fungicide, Maneb, in the control of beet seed rot and beet seedling blight.

Cooperating with the experiment station in the studies are Great Western Sugar Co., Dow Chemical Co., Carbide and Carbon Chemicals Co., Howry-Berg Machinery Co. and the U.S. Department of Agriculture.

★

A fungus-caused leaf blight, latest uninvited guest in California almond orchards, can be controlled by proper use of fungicides. Four plant pathologists at the University of California, Davis, said this in a recent report on their study of the blight's symptoms and remedies.

The disease was first spotted in 1950 in Butte County orchards. Today, it occurs throughout the Sacramento and northern San Joaquin Valleys, the area where 86% of the state's almond orchards are located.

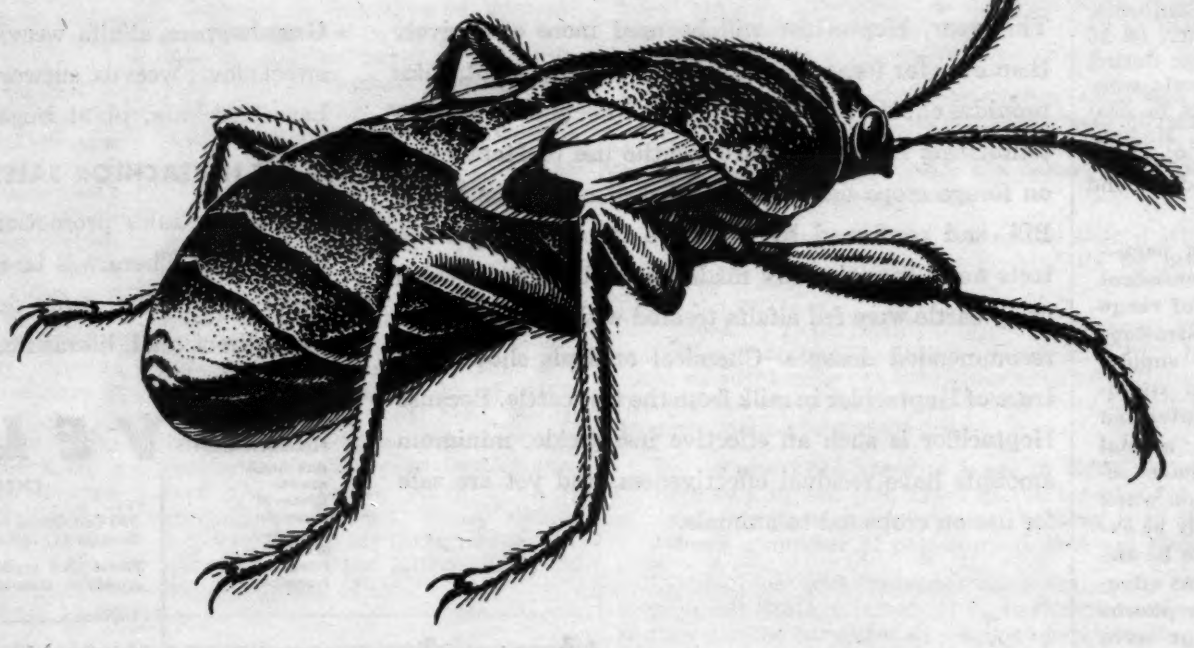
According to the plant pathologists—E. E. Wilson, J. M. Ogawa, Harley English, and H. J. O'Reilly—the responsible fungus has not yet been identified. However, presence of the disease can be detected when, beginning in June, individual leaves on shoots or spurs begin to wither, turn brown, and dry up. A portion of these shriveled leaves remains on the tree until the following spring.

In winter, the lower ends of persisting leaf-stems may turn light tan. Then small dark spore-bearing bodies of the fungus may develop on these parts. The fungus, by extension from the leaf into the twig, can kill both buds in fall and emerging flowers in spring, thus seriously affecting future crop yield.

The almond varieties most susceptible to the disease include Drake, Ne Plus Ultra, and Peerless. Nonpareil, Texas (Mission), and IXL varieties are moderately susceptible, the scientists reported. They recommended leaf blight control by use of either protective fungicides (captan or ziram), applied at late petal fall stage, or eradicative fungicides (sodium pentachlorophenoxide or N-phenylmercuriethylenediamine), applied in early spring before the buds begin to open.

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Lawn Chinch Bug

How to Identify

Lawn chinch bugs are quite small, black in color and about ⅛ inch in length with white spots on their wings. They feed exclusively on corn and grasses and during periods of abundance, or in dry weather, lawns may be damaged seriously by the pest.

Damage Done by the Pest

The lawn chinch bug attacks the lawn from above ground. It sucks plant juices and injects into the plant a toxic salivary substance which damages the plant and causes bare spots and brown patches in the grass. Injury is usually seen first along driveways, walks and curbings. In thick, matted turfs, damage is much more severe than in new or unfertilized lawns.

Habits of Lawn Chinch Bug

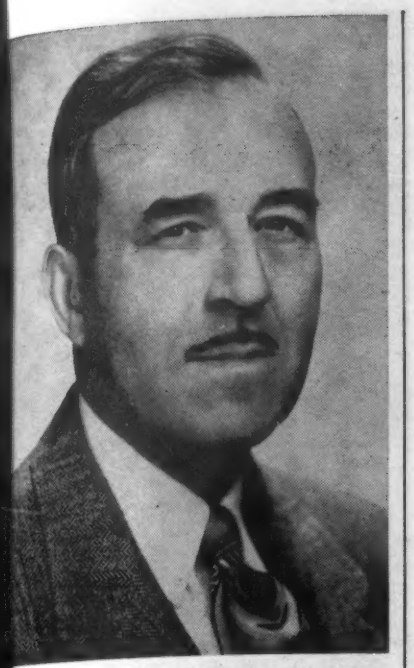
After spending the winter months in sheltered areas, the bug appears in the early warm days of spring and begins the process of laying eggs in which it engages for nearly a month. Nymphs hatch about two days later and begin to feed.

Lawn Chinch Bug Control

As in most cases, no single control material is used to halt the bug. A number of sprays, dusts and barriers of various sorts have been employed to control the lawn chinch bug. Toxaphene, chlordane, aldrin and dieldrin, rotenone, DDT, sabadilla and nicotine all appear in various literature as means of control. Methods of application appear to be of particular importance, with emulsions and granular forms being preferred in a number of cases. Lawns should be watered both before and after application.

Drawing of Lawn Chinch Bug furnished Croplife through courtesy of Shell Chemical Corporation, New York.

Previous "Bug of the Week" features have been reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.



E. R. Bailey

RETIRES—The retirement of E. R. Bailey, manager of the San Francisco plant of the Bemis Bro. Bag Co., has been announced by Judson Bemis, executive vice president. Mr. Bailey has completed 52 years of service to the company. He joined the Bemis Boston office as a clerk in 1904 and was transferred to San Francisco in 1906 where he undertook part-time selling activities in conjunction with shipping clerk duties. In 1909 he was transferred to Salt Lake City where he opened the first Bemis sales office in that city. He was subsequently in charge of the Denver sales office and was first sales manager of the Omaha sales division. In 1920 Mr. Bailey became manager of the Memphis plant and in 1931 was transferred to California as manager of the Bemis San Francisco plant, a position he held until his retirement.

Interest Shown in Chemical Analysis Meeting

WASHINGTON—About 40 chemical analysts from the fertilizer industry and state control offices have already indicated they will attend a two-day school at Purdue University May 17-18 to familiarize themselves with two new methods of analysis.

The meeting is being sponsored jointly by the Indiana state chemist and the chemical control committee of the National Plant Food Institute.

Those attending will be given the opportunity to run through the procedures for determining potassium by the tetraphenyl borate method and nitrate nitrogen by the reduced iron method. Subsequently, collaborative work will be done on these methods by the participants in the school for consideration by the Association of Official Agricultural Chemists. The AOAC is the official body in the United States, that has the final say as to the validity of any proposed methods of analysis to be used for chemical control purposes.

Phosphate Carry-over

FORT COLLINS, COL.—Dr. W. R. Schmehl, Colorado A&M Experiment Station agronomist, is testing carry-over effects of phosphate. He said that recent studies show that relatively small rates of fertilizer (100 to 125 lb. of superphosphate per acre) will leave residual effects two and three years after application. Rates of 400 to 500 lb. of fertilizer will carry over to the fifth year or more.

CLEMSON CIRCULAR

CLEMSON, S.C.—Circular 420, Cotton Production, Insect and Disease Control, 1957, is now being distributed by the Clemson Extension Service. It was prepared by the Clemson Extension Cotton Committee. The circular contains cotton production and insect and disease control practices recommended for South Carolina.

Gloomicides

A certain corporal had been overseas two years when he received word from his wife of a newly-born son.

Cigars were in order, so he purchased several, and began dispensing them, repeating the news of the blessed event. With one cigar left he entered the lieutenant's office.

After hearing the corporal's story the lieutenant said: "Jones, doesn't it seem strange to you that you have been overseas at least two years and your wife has just now had a baby?"

Jones beamed brightly, "Oh, no sir," was his reply, "There was three years between my brother and me."

★

This life is a round-and-round affair. People eat animals, animals eat smaller animals, smaller animals eat vegetables, vegetables eat animalcules, animalcules eat bacilli, bacilli eat microbes, and microbes eat us. The cannibal takes the short cut.

★

"Why won't you marry me?" he demanded. "There isn't anyone else, is there?"

"Oh, Edgar," she sighed, "there must be."

★

There seems to be no permanent solution for the troubles besetting our country. All we can hope for is a relief from the last solution.

★

Census Taker: "Do you live within your income?"

Householder: "Certainly not. I have all I can do to live within my credit."

★

They were looking at antiques in an out-of-the-way and not too promising shop. "This bed," the antique dealer confided, "actually belonged to my great-great-grandmother."

"Sure," said the unbelieving wife, "and no doubt one of the beds Washington slept in."

"Very likely, ma'am," replied the dealer, "though, of course, you'd never get Granny to admit that."

★

A committee is a group that keeps minutes but wastes hours.

★

Senator Gabble: "And now, gentlemen, I should like to challenge your thought and tax your memory."

Colleague: "Say, why haven't we thought of that before?"

★

Teacher: "Now, Johnny, if I lay two eggs here and three over there and six more, how many will there be altogether?"

Johnny: "Personally, I don't think you can do it."

Finding Answers to Residue Problems in Meat and Milk Big Task for Entomologists

By E. F. Knipling*
Entomology Research Division,
Agricultural Research Service
U.S. Department of Agriculture
Washington, D.C.

The extensive use of new chemicals for insect control has created concern over their possible adverse effects on the health of people, particularly through the consumption of residues on food products. This problem is so important that every reasonable safeguard must be taken to avoid residue hazards. Fortunately, so far as we are aware, there have been no instances of chronic poisoning from residues. This speaks well for the caution that has been exercised by regulatory agencies and research and extension workers in federal, state, and industrial institutions responsible for the development and recommended use of insecticides.

This good safety record must be maintained. At the same time we must provide effective procedures for controlling insects. To achieve both objectives it will obviously be necessary to consider not only the risks of the chemical but also the risks of damage by insects. We can appreciate the importance of the latter risk by turning back the calendar a few years. If overnight the farmers, householders, and public health officials were denied the use of insect control chemicals that have come into wide use during the last 12 years, the world would be faced with a catastrophe.

Hundreds of millions of people would again be subjected to the many insect-borne diseases that have been prevented by the new insecticides. Many farmers, who today face difficulties in achieving production efficiency comparable with other industries, could hardly stay in business.

I do not mean to imply that there is any danger that our insect control weapons will become unavailable for use overnight. However, several developments may force us to discard certain vitally important measures in the years ahead. More and more insects are becoming resistant to insecticides and no solution to this problem is in sight. A number of well-established uses for insecticides might have to be abandoned if it cannot be shown that they comply with current requirements of Public Law 518.

All agencies concerned with the use of insecticides should take a good look to see where we stand today. They should keep in sharp focus the need for chemicals to control insects as well as the need for their safe use. Looking to the future they should be prepared to obtain needed information as efficiently as possible and to establish policies that will assure both practical insect control procedures and safe use of pesticides.

We know where we stand today with respect to the use of most insecticides because we know that established tolerances can be met. We have every reason to expect that in the near future additional uses for the older insecticides will be shown to be in complete compliance with existing requirements. The Food and Drug Administration officials recently established a tolerance for DDT in the fat of beef animals. This tolerance which was set at 7 ppm will clear the use of DDT for such vital purposes as corn borer control on field corn and post-harvest feeding of the forage to beef cattle.

In reaching the decision to establish the indicated tolerance, which we can be sure was a difficult one to make, the Food and Drug Administration officials no doubt took into consideration the urgent need for the insect control measure, the long history of safe use of DDT for many purposes, and other important factors. This tolerance cannot be met by continuing to use DDT for livestock-insect control in the manner recommended in the past, but 7 ppm appears to be a realistic level.

Unfortunately, however, the future of a number of well-established uses for insecticides that were originally recommended on the basis of compliance with the Federal Insecticide, Fungicide, and Rodenticide Act is still uncertain today. Recently the Entomology Research Division of the Agricultural Research Service completed a critical review of all recommendations that were made in 1956. This review, made in consultation with members of the pesticide regulation section of the plant pest control division, was conducted in the light of requirements of the Insecticide, Fungicide, and Rodenticide Act and of the Miller Amendment.

We have no reason for immediate concern over the newer insecticide uses developed since the passage of the Miller Amendment. The immediate problem is restricted to certain long established uses that were registered on the basis of requirements of the Insecticide, Fungicide, and Rodenticide Act, and to my knowledge such uses have shown no evidence of hazard due to residues.

Examples are (1) methoxychlor for controlling insects on dairy cows, (2) toxaphene for controlling ticks on cattle, (3) retenone for controlling cattle grubs, and other pests on dairy and beef cattle, (4) standard arsenical dips for tick control on cattle, (5) certain insecticides for controlling Mexican bean beetles on soybeans, and (6) DDT, toxaphene, chlordane, and ethylene dibromide for controlling wireworms, grubs, and other soil-inhabiting insects attacking truck crops, and (7) certain sprays for controlling insects on pecans and other nut crops.

The Agricultural Research Service has given careful consideration to the matter in attempting to determine what uses should be continued for the 1957 season. It has been decided to continue to recommend all uses except those that are known to produce residues in milk and other commodities for which tolerances have not been established. Recommended uses that cause residues in excess of established tolerances will be withdrawn or suitably modified.

In line with the above decision it will be possible to continue for this season most of the recommendations that have been made in the past. However, several important uses will be deleted or recommendations substantially modified. These include DDT sprays for controlling flies, lice, and ticks on beef cattle, toxaphene for controlling flies and ticks on cattle, lindane sprays for the control of lice and mites on dairy cattle and methoxychlor for the control of insects on dairy cattle. If and when tolerances are established which can be met, recommendations will again be made with such modifications as may be necessary.

This decision will apply to the 1957 season only. In the meantime, efforts must be concentrated on obtaining residue data required for those uses that are still open to question for the future. This will necessitate the combined effort of research workers in industry, state experiment stations, and federal research laboratories.

For example, we must obtain residue data on retenone when applied to dairy and beef animals for livestock pest control. Additional data are needed to establish the safety of soil treatments with DDT, toxaphene, chlordane, and other materials for many truck crops and also of lindane, aldrin, and heptachlor on a variety of forage crops.

This backlog of residue work that is before us, plus the studies needed to establish the safety of new pesticides now under development, constitutes a work load that will be difficult to carry with available manpower and facilities. Nevertheless it is clear that we have much to do before we will know where we stand tomorrow with reference to a number of well-established insecticide uses.

There are too many uncertainties today and developments in new chemicals and methods of employing them are being made too rapidly for us to forecast the situation ten years hence. Several factors will determine the kind and amount of insecticides that will be in use at that time. If you will bear with me, I will discuss some of the things that I think we must do and some of the obstacles that we should overcome or make less formidable, if we are to make the progress that we all hope for.

1. Provision of a balanced program on biological evaluation of insect control chemicals and on residue studies.

The uncertain situation we are in today has been brought about largely because research agencies in general have not devoted enough effort to the development of reliable and economical methods of assaying for residues and to obtaining adequate residue data. We must realign our programs to achieve a better balance between the biological evaluation and residue-determination phases of our research programs. In addition, we should attempt to impress on top management in our institutions that more support is needed for residue work including research on methods of assaying.

The degree of success we achieve in realigning our work and in obtaining needed support for residue studies tomorrow will have an important bearing on our position with respect to the use of insecticides ten years hence.

2. Adequate studies on the pharmacology of insecticides and early translation of findings into approximate magnitude of permissible tolerances.

Information on the chronic toxicity of an insecticide to higher animals is the first requirement for establishing tolerances. It is highly important that such information be obtained as soon as possible on all insecticides that are likely to find a place in insect control. During the past ten years much work on the biological evaluation of candidate insecticides was unproductive in terms of practical application because entomologists and insecticide chemists had no idea what the permissible tolerance might be.

If we are to conduct our entomological research with maximum efficiency in the years ahead,

* Paper presented at North Central Branch meeting, Entomological Society of America, Des Moines, Iowa, March 29, 1957.

Jeff M. Johnson

BAG REPRESENTATIVE — Jeff M. Johnson has been appointed as representative for the Percy Kent Bag Co. in Iowa and Nebraska, with headquarters in Omaha. Prior to his appointment with Percy Kent Mr. Johnson was with Bemis Bro. Bag Co.

INSPECT FLORIDA OPERATION—Directors of the Smith-Douglass Co. were in Florida recently to inspect mining at their Coronet phosphate division and to check operations for possible future improvements and expansion. Pictured above, checking rock deposits in the area, are, left to right, R. M. Wilbur, manager of the Coronet phosphate Florida operation; J. H. Culpepper, Smith-Douglass vice president and director; Joseph C. Jett, Smith-Douglass director and head of the J. C. Jett feed and fertilizer brokerage firm; R. S. Rydell, Coronet president; R. R. Charles and L. J. Kellam, Smith-Douglass directors.

it will be necessary for the pharmacologists whenever possible to translate their findings into approximate magnitude of tolerances before, and not after we have done extensive work on determining entomological effectiveness and the amount of residues that occur on harvested commodities.

We of course cannot expect a pharmacologist to be precise in his estimates of a safe tolerance before information on manner of use is presented, but I see no reason why he could not report the results of his studies and indicate trends in terms of possible permissible tolerance levels pending the establishment of the need for a chemical. It would be extremely helpful if he could indicate that a safe tolerance could be considered in the approximate level of 0.1, 1, 5, 10, or 20 ppm.

Unless such advance information is provided, entomologists and chemists will be forced to devote much of their effort to hit-and-miss research with the hope that they guessed right in putting most of their chips on a given chemical. In the past we have had to do a lot of guessing.

I should think such advance information on possible tolerance levels would also be a great aid to industry in deciding what chemicals to include in a developmental research program. If the approximate maximum tolerance for promising insecticides were known early in their development, afforts could be pin-pointed on those insecticides that are most likely to permit good control within the indicated permissible tolerance. A minimum amount of research will usually show whether a given tolerance can be met and it might be obvious that certain materials could not be used for certain purposes.

In this connection, it would also help chemists and entomologists working on residues to know as soon as possible the degree of sensitivity required to indicate presence of residues. This level could be established on the basis of toxicity of the compound. If a sensitivity level of .5 ppm could be established for insecticides of low toxicity, it would obviously be easier to develop satisfactory methods of analysis than if an arbitrary level of .1 ppm were set regardless of the toxicity of the material.

3. Establishment of Tolerance Levels That Apply to a Wider Range of Insect Control Recommendations and Commodities.

The amount of residue data required could be reduced greatly if tolerances applicable to a wider range of uses could be established. Currently tolerances are established for each insecticide use. This requires expensive residue studies on a wide range of commodities and for every insect to be controlled.

Generally, economic necessity, possible adverse effects of chemical treatments on beneficial organisms, and other factors encourage use of insecticides in the minimum amount needed for insect control and with a minimum number of treatments. Therefore, the residue level will tend to be at a minimum consistent with satisfactory control procedures.

A good example can be cited in connection with the use of DDT. As the result of tolerance hearings held in 1950, a tolerance of 7 ppm was established on many fruits and vegetables. Many control measures for DDT led to residues much lower than 7 ppm. However, there was no substantial change in recommendation because the higher tolerance could be met. I recognize the importance of establishing tolerances that assure safe usage and some proof of the tolerance level needed should be required but relaxation of the requirements to minimize cost for obtaining residue data consistent with safe usage should be carefully considered.

4. Need for safe but practical tolerance in special feeds.

A mere tolerance in certain feeds regardless of toxic level of the insecticide is almost an unsurmountable handicap to be met in the development of certain uses, particularly those involving dairy cattle. Chemists tell me that complete absence of a chemical in a product cannot be established.

No one questions the need to consider dairy animals in a special category. However, a zero tolerance as now interpreted is a requirement that is frustrating, to say the least, in our efforts to provide the dairy industry with good insect control measures.

The control of insects attacking dairy cows is a vital part of dairy production but the future development of good insect control measures will be extremely difficult, or even impossible, unless something more tangible than zero will be accepted as a basis for establishing tolerances.

5. Need for educational progress to assure grower compliance with recommended insecticide usage.

One of the most important contributions that can be made by those responsible for formulating and issuing recommendations is to stress the need for grower compliance with the directions for use. We must in some way impress on growers that the misuse of insecticides can lead to serious consequences. I believe that by and large, growers try to follow recommendations and that we have every reason to expect steady improvement in this direction in the years ahead. There is evidence, however, that this is a sufficiently serious problem today to cause concern.

A recent survey by the Food and Drug Administration has shown that most of a large number of milk samples collected throughout the United States contained traces of insecticide residues. The generally low residue levels found are reassuring to me. However, the presence of the trace amounts of residue do indicate misuse of pesticide because no tolerances in milk have been established.

Most of these low levels of residues are, no doubt, due to unintentional misuse, such as when sprays or dusts drift from a cotton field or orchard onto adjoining dairy pastures. Others may represent uses on forage crops or livestock by a small minority of growers. However, the results of the study do emphasize the urgency of educational campaigns to encourage use of insecticides in a manner that will avoid milk contamination.

Eugene L. Baenen

Eugene L. Baenen Assigned to New Post with DuPont

WILMINGTON—Eugene L. Baenen, formerly a sales representative in the Pacific Northwest for DuPont nitrogen products for the fertilizer and feed industries, has been assigned to Charlotte, N.C.

In his new territory, which includes Virginia and the Carolinas, Mr. Baenen is sales representative for "Uramon" ammonia liquors, "Nu-Green" fertilizer compound, "Uramite" fertilizer compound, and "Two-Sixty-Two" feed compound.

Mr. Baenen joined the company's polychemicals department as a sales representative in 1952. After a period of sales development work, he was assigned to the Pacific Northwest territory.

A native of Minnesota, Mr. Baenen attended the University of Idaho. He also received a bachelor's degree in soils science from North Dakota State College. From 1949 to 1952, he was employed as a soils scientist by the Soil Conservation Service.

Phosphate Boosts Alfalfa Yield in California Plots

SAN MARINO, CAL. — Alfalfa in the desert valleys of Riverside County responded significantly to the application of 100 lb. of phosphate expressed in terms of P_2O_5, drilled to a depth of 10 inches, reports the California Fertilizer Assn.

The Riverside County Agricultural Extension Service, University of California, in its 1955-56 report on field crop production studies, said that phosphate placement trails on alfalfa on the Dale Hull Ranch near Blythe produced the following results:

Three plots were observed—the check, on which no phosphate was applied; application of 100 lb. P_2O_5 per acre, broadcast and top-disced; and 100 lb. P_2O_5 per acre chiseled in to a depth of 10 inches. In both cases the phosphate was applied prior to planting. Six cuttings were made by hand, and the weights given were of dry hay.

The plot which received P_2O_5 drilled in yielded a total of 10.37 tons, dry weight. That which had received P_2O_5 broadcast and disced yielded 8.55 tons, and the check produced only 5.48 tons.

CLARENCE E. VULGAMORE DIES

ANNESS, KANSAS — Clarence E. Vulgamore, 53, manager of the Sam P. Wallingford grain elevator here, died April 28 at his home in Anness. Born July 10, 1903, at Milton, Kansas, he had lived in the Milton and Anness areas all his life. He was manager of the grain firm, which handles farm chemicals, at the time of his death.

Plans Set for Field Day at Oregon Farm Demonstration Project

PORTLAND, ORE. — A field day has been set May 14 for the Oregon grasslands demonstration farm project near Hillsboro, Ore. by the Soil Improvement Committee of the Pacific Northwest Plant Food Assn.

This is the second year of the project and producers, fertilizer dealers, manufacturers and distributors have been invited to view the progress of the project.

Definite plans for the field day expected to be attended by 1,500 to 2,000 people, have been completed by the local committee, headed by Ed Day, Hillsboro business man, Palmer Torvend, county extension agent, directly in charge of the program, and Grant Braun, chairman of the soil improvement committee of the association.

Roads to the Lennox Blatchford farm will be closed that day. Visitors will be taken from the county fair grounds, where there is ample parking space, by 10 busses with a capacity of 40 people each which will shuttle between the farm and the fair grounds all day.

On each bus there will be a host, who will explain the background and general features of seven fields on the farm. Explanations of the amounts of fertilizers and type used on each field will be included. Upon arrival at the farm, they will be met by a guide who will take persons to No. 1 station, explaining in detail further information on No. 1 field, then on to subsequent guides until the seven stations have been completed.

This is the third project sponsored by the Pacific Northwest Plant Food Assn., projects of a similar nature having been completed in Oregon and Washington. These have been set up on individual farm basis, rather than experimental plots. It has been one of the major projects of the association for the past six years, and has drawn many thousands of visitors to the projects near Lynden, Wash. and Sand Point, Idaho.

The purpose has been to show the results of proper application of fertilizers, farm management practices and actual cost figures.

Florida Consumption

TALLAHASSEE, FLA. — March fertilizer consumption in Florida totaled 186,613 tons, according to the Florida Department of Agriculture. The total includes 136,845 tons of mixed goods and 49,768 tons of materials.

FLORIDA FIELD DAY

GAINESVILLE, FLA.—A field day program devoted to field crops will be held at the University of Florida Agricultural Experiment Station May 23.

SAFETY IS EASY IF SEVEN BASIC STEPS ARE FOLLOWED

CHICAGO—Safety is just good business—and it's easy if seven basic steps are followed, according to the National Safety Council.

The steps are included in a one-fold leaflet, "Seven Steps to Safety," a digest of the council's previously published eight-page booklet, "Plus Costs of Accidents."

Safety experts have viewed the leaflet as a "most concise" statement of principles of industrial safety. Here's a summary of the seven steps: 1. Insist on safety. 2. Assign someone to help on details. 3. Locate trouble spots. 4. Make the job safe. 5. Control unsafe habits. 6. Keep simple records. 7. Get employees into the act.

Single copies of "Seven Steps to Safety" may be obtained on request from the Small Business Program, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Dealers Eligible for Velsicol Contest

CHICAGO — Dealers of Chlordane insecticide products are eligible to compete for a number of cash prizes and trips, announces the Velsicol Chemical Corp. Dealers are asked to maintain a Chlordane insecticide display for two weeks during the period May 1 through June 30. A photograph of the display must be submitted, along with an official entry blank, to the company.

Cash prizes ranging from $50 to $500 will be given in each of six regions. Regional winners will then compete for five U.S. awards, among them being a trip abroad or $1,500 in cash.

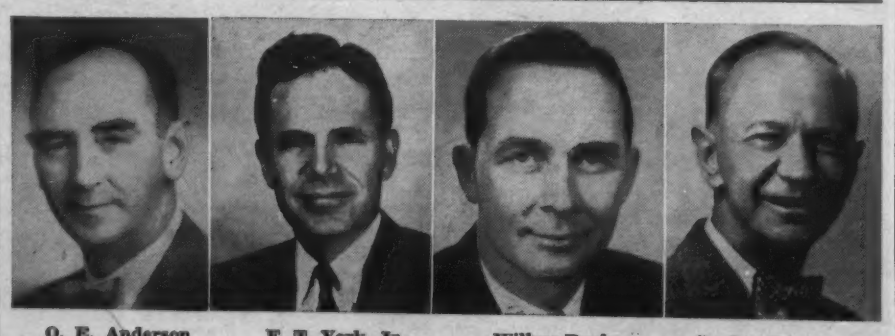
Dealers can get complete information and a display kit from the Velsicol Chemical Corp., 330 E. Grand Ave., Chicago 11, Ill.

Colorado Water Outlook

FORT COLLINS, COL. — Despite Colorado's brightest water supply outlook since 1952, some shortages are still expected this summer. Irrigation water will be generally adequate throughout the state, except in the Lower Arkansas and South Platte Valleys. Some shortages are predicted in those areas, according to Homer Stockwell, snow survey leader for Colorado and New Mexico, Soil Conservation Service, stationed at Colorado A&M College. Even in the areas of short supply, however, the outlook is better than a year ago, Mr. Stockwell said. The San Luis Valley can expect a near-normal water supply, but the supply will not meet all demands, he added.

BUYS WAREHOUSE

IMPERIAL, CAL.—The Southwest Flax Seed Assn. of Imperial has purchased the warehouse of the Continental Warehouse Company here and is now using the building to store grain for feed products and farm fertilizers. The warehouse has a holding capacity estimated at 10,000 tons, according to Fred Sterzing, manager. A 50 by 200 foot addition is under construction for the purpose of storing fertilizer held for distribution by Balfour-Guthrie.



O. E. Anderson — E. T. York, Jr. — Wilbur Renk — Gordon B. Nance

HOW BIG IS FERTILIZER MARKET?—A feature of the 1957 convention of the National Plant Food Institute, at the Greenbrier, White Sulphur Springs, W. Va., June 9-12, will be a panel discussion on "How Big Is the Fertilizer Market?" to be presented on June 10. Left to right, panel speakers will be O. E. Anderson, secretary, Ohio Bankers Assn., moderator and speaker "From the Bankers' Standpoint;" E. T. York, Jr., northeast manager, American Potash Institute, who will discuss the subject "From the Soil and Crop Standpoint;" Wilbur Renk, Wisconsin farmer, speaking "From the Farmer's Standpoint;" and Gordon B. Nance, professor, department of agricultural economics, University of Missouri, Columbia, speaking "From the Economic Standpoint."

Spencer Third Quarter Sales Below Record Established Year Ago

KANSAS CITY—Spencer Chemical Co. reported sales in the third quarter ended March 31 were about 6% below the all time high of a year earlier. The month of March, however, showed a record volume resulting from accelerated seasonal demand for nitrogen products and a sustained high level of polyethylene shipments.

Reduced prices on some products combined with lower physical volumes, increased costs of labor and raw materials and higher expenses, particularly in the research and development field, resulted in a reduction in net profits as compared to the same period a year earlier.

In an interim report to stockholders, Kenneth A. Spencer, president, said sales of polyethylene continued at capacity rates but that sales of nitrogen products are being "adversely affected by lower prices due to intense competition and lower tonnage volume principally resulting from the extended drouth in much of the company's trade area."

The generous rains of recent weeks appear to have broken the drouth and this should "materially benefit the company's sales of nitrogen materials in the future, but is not expected to have a substantial bearing on sales during the final quarter of the fiscal year which ends June 30," he said. Commenting further on future prospects Mr. Spencer stated: "The increases in labor and raw material costs involved in fixed nitrogen production appear to be contributing to a firmer price structure and we believe some general increases in nitrogen prices will be required to offset these higher costs of production."

Net earnings on the common stock in the current fiscal year are expected to be about 15% lower than in the year ended June 30, 1956, when they amounted to $4.73 a share, Mr. Spencer indicated.

In the third quarter ended March 31, sales were $14,152,135, compared with $15,084,791 a year earlier. Net income was $1,729,868, equal to $1.41 a common share, after preferred dividends, compared with $2,370,829, or $1.97 a share, a year earlier.

For the nine months of the fiscal year to March 31, sales were $32,852,063, up from $32,574,001 a year before. Net income of $3,257,819 was equal to $2.51 a common share against $3,976,741, or $3.13 a share, a year before.

Directors have voted the usual quarterly dividends of 60¢ on the common and $1.05 on the preferred, both payable June 1 to holders of record May 10.

SOUTH CAROLINA SALES

CLEMSON, S.C. — Fertilizer sales in South Carolina during March totaled 233,862 tons, compared with 286,994 tons in March, 1956, according to the South Carolina Department of Fertilizer Inspection and Analysis. Sales during the first nine months of this fiscal year (July-March) totaled 516,670 tons, a decrease of 9.8% from 572,566 tons in a comparable period a year earlier.

Shelton Appleton

Shelton Appleton Moves into New PCA Responsibilities

WASHINGTON, D.C.—Potash Company of America has announced that Shelton Appleton, recently transferred from the Southwest to PCA's Peoria office, will assume the responsibility for the accounts formerly serviced by F. H. Kennedy. The latter has taken over the duties of midwestern sales manager from T. E. Bradley, retired.

Mr. Appleton has been associated with PCA for the past three years. Formerly he was with the South Florida Insecticide Co., Lion Oil Co., and Armour Fertilizer Co. He is a graduate of Auburn University with a degree in agronomy.

During World War II, Mr. Appleton served in the Marines for 3½ years. He is 31.

Utah Storm Heralds End of Drouth

SALT LAKE CITY, UTAH—Farmers in Utah's drouth area are jubilant over the state's latest storm. Many reports claim that at long last the seven-year drouth had been broken.

The widespread storm added valuable moisture on mountain watersheds and was generally beneficial in providing ground moisture at lower elevations.

"The biggest benefit of the storm will be building up of snow in the mountains," Wallace Sjoblom, Iron County extension agent, said. Precipitation at Cedar City, Iron County seat, measured .88 of an inch since the storm began.

At Delta, where 1.42 inches fell in less than 24 hours, the storm was hailed as "considerable help" by Marvin Ogden, assistant county agent.

"We've been about one-third short of irrigation water here," he said. "We hope that mountain watersheds will build up so that they will have more than anticipated. He added that spring grain will be greatly aided, also.

TO MARKET CHLORINE

NEW YORK—The industrial chemicals division of Olin Mathieson Chemical Corp. will market all of the chlorine output of the new chlorine-caustic soda plant being constructed by Kaiser Aluminum and Chemical Corp. at Gramercy, La., according to an announcement by John O. Logan, vice president and general manager of the Olin Mathieson division. Scheduled for completion this fall, the plant will have a capacity of 100 tons per day of chlorine and equivalent caustic soda. The caustic will be used by Kaiser Aluminum in its new alumina manufacturing operation at Gramercy.

FARM PROGRAM

(Continued from page 1)

bases which make a jest of farming on many farm units.

The mirage of the soil bank is rapidly being seen as what it actually is—a neat political dodge designed to capture votes as painlessly as possible. Thus far it has had little effect on reducing supplies of the big surplus commodities. Many USDA leaders are saying privately that the soil bank is a failure.

It had been previously hoped that a vigorous soil bank sign-up campaign could have made heavy inroads into production of the major surplus crops within the three year life of the bank. But that goal is not in sight.

The corn surplus at the end of this crop year on Sept. 30 will show an increase in the carry-over notwithstanding the operation of the soil bank last year. The farm contribution of corn acreage to the soil bank this crop year is slightly in excess of five million acres, but again it is doubted that the soil bank campaign by itself can correct the heavy grain surplus problem.

Recently Mr. Benson took a bold step when he approved a cut in the price support level of wheat by 22¢ bu. to a national average price support level of $1.78 bu. The 1956 crop price support level was $2 a bu. That level, however, was not justified by the provisions of the sliding scale formula, and it was seen as a political expediency to select the $2 support line in a campaign year.

Now, however, Mr. Benson is going all out under the flexible price support provision of the Farm Act of 1949 and has lowered the level of support to the statutory minimum available to him for that crop on the basis of the supply-demand formula.

Congressional spokesmen familiar with the broader aspects of the farm problem are now wondering if the price of wheat next year will stay above the support level to justify the secretary's decision. The out-look is not promising on the basis of the world supply estimates for this coming season.

European wheat harvest bids fair to be a record smasher. All wheat producing areas are in excellent condition with the exception of Australia and the Argentine. With improving weather conditions, the U.S. crop which was seen in low ground is reported as improving considerably. Despite heavy exports of wheat stimulated by the provisions of Public Law 480 (with sales made for soft foreign currencies involving loans to those nations of such local currencies over a period as long as 40 years), the cut in the wheat surplus on June 30, 1957 will not be consequential.

The old Farm Bloc which represented a solid phalanx of the Congressmen from the basic commodity groups is now reduced to small groups casting about for selfish advantage.

There is no disposition within the farm leadership in Congress to tackle the problem at this session.

Many rumors have circulated that the White House will send a sharp message to Congress calling attention to the bankruptcy of the present farm program but these rumors are discarded as untrue by reliable GOP farm leaders on Capitol Hill.

It is seen in some quarters that a strong new leadership may come from the agricultural facilities of the land grant colleges.

This recalls the basic ideas submitted by Dr. Russell Coleman, executive vice president of the National Plant Food Institute, over two years ago, wherein he presented a blueprint of reason and profit to the farm community through drastic reduction in farm acreage for the major surplus crops. This would include intensified cultivation of the land in production, which, on the basis of material obtained from land grant college agricultural economists, indicated that drastic reduction in the crop land for corn, cotton and wheat would produce better profits with lower costs per unit of production. These utilized acres would be cultivated on a scientific formula.

The Coleman blueprint was the sort of a step which is now indicated. Dr. Coleman himself admitted that such a remedy would require some extensive social adjustments and at that time he was not prepared to submit a formula for such an adjustment as might be necessary.

But the point is that Dr. Coleman more than two years ago was forecasting precisely the aimless wandering of the farm leaders which now exists. Dr. Coleman was attempting to provoke action through stimulating ideas—subject to modification. He was not wedded to any rigid support of his blueprint, but merely wanted the farm community to look at his blueprint to appraise where they were and where they appeared to be going.

These comments are not aimed at pinning the label of failure on the Benson administration. The Secretary has been using the legal tools at his command as supplied by Congress. During his leadership of USDA he has had on occasion to eat crow and bow to political expediency which many times violated his deepest convictions. Possibly his greatest error was his original failure to sense the magnitude of the surplus disposal problem which has faced him at every turn of his fight to get agriculture on solid grounds through methods he believes to be sound.

Probably greater blame on the present situation rests with the Congressional Farm Bloc leaders who clung desperately to rigid high price supports and acreage allotments even when it was evident to all that those avenues would lead to the disaster which has been the fate of the Congressional Farm Bloc leaders.

It was pointed out to this reporter several years ago that the national and state farm political leaders who were fighting the rear guard action on rigid high price supports were clearly out of step with the farmers who had lost confidence in the rigid high price supports.

Possibly the only beneficiaries of the price support program have been the grain warehousing industry which for long years fought the rigid high price support goals. Only under extreme government pressure were they persuaded to expand facilities to a point where now it is seen by industry leaders that the warehousing industry is seriously over-built and possibly may shortly be in precarious shape.

Thus, with ideas like those of Dr. Coleman's being ignored by farm leaders, and agriculture falling into a state of stagnation, there is evidence that the farmer himself is becoming less dependent upon Washington and is now in the mood to make his own planting decisions and his own financial adjustments.

All of this may in the long run be good for the plant food and pesticidal chemical industries. A determined farm community intent on the most efficient utilization of the land and in obtaining the lowest per unit cost of production may ultimately be a much better customer for fertilizer and other agricultural chemicals than a kept-farmer leaning on soil bank and price support reeds arranged by vote-seeking congressmen in Washington.

New Brunswick Plans Budworm Control

FREDERICTON, NEW BRUNSWICK—Five million acres in New Brunswick, more than double last year's total, will be sprayed this year for control of the spruce budworm.

The project will be carried out by Forest Protection, Ltd., which will apply 2.5 million gallons of insecticide from 190 aircraft.

ILLINOIS SOIL TESTS

URBANA, ILL.—Soil tests were made on more than 2.3 million acres of Illinois farm land in 1956. A. U. Thor, manager of the University of Illinois soil testing laboratory, reports that about one out of every three farms in the state was represented. More than 650,000 samples were tested in the state's 83 county extension laboratories and 41 commercial laboratories last year.

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Sales Tool: Less Water Needed for Well-Fed Crop

With water supply prospects in many of the southwestern states still not good, despite recent rains which brought at least temporary relief to the parched fields, it is well to keep in mind that well-fertilized crops need much less moisture.

Experiments at the University of Missouri in which the effect of fertilizer on the amount of water needed to produce corn brought out some significant results.

Whereas 21,000 gallons of water were required to produce one bushel of corn on low fertility soil, only 5,600 gallons were needed to produce a bushel of corn on the same soil, heavily fertilized. These results should be kept in mind as a fertilizer sales tool, particularly in areas where the water supply is critical.

University of Missouri scientists, in explaining how adequate fertilization can lessen the need for water, said that available water contained a higher concentration of plant food in the fertilizer soil. Credit was also given to the fact that root systems of plants in fertilized soils are greatly improved. Where fertilizer was applied, roots grew faster, were more vigorous and penetrated to a depth of 4 feet as compared to about half that depth on unfertilized soil.

It follows, therefore, that fertilizer sales should not necessarily drop when rainfall lessens. Sales people in talking to farmers can truthfully say that well-fertilized crops can "come through" dry spells with much greater profit margins than can plants that are forced to struggle along on a bare subsistence of nutrients.

Quote

"It is a matter of vital concern that there are still great gaps in our knowledge about the basic characteristics of plants and plant growth, and that the scale of effort being directed towards these problems is not commensurate with the long-range importance of this missing information. Some of these gaps may have to be filled before the mechanisms of response to herbicides can be understood. Millions of pounds of certain herbicides are used annually, but the current technology, which contains many elegant examples of apparent selectivity, has been developed almost exclusively by empirical experimentation. For example, whether or not the phenoxyacetic type of herbicide involves directly or indirectly the endogenous hormonal system of plants is far from certain, despite the availability of these compounds for well over ten years. There is, however, as good a likelihood of uncovering some of the unexplained features of the native auxin systems of plants by the intensive investigation of responses to herbicides as there is in a frontal attack. Weed men cannot wait for others to solve these problems. They should reconsider the strategy to be followed as individuals and as groups. They have an awareness of the significance of the missing information, and may benefit greatly and in unexpected directions when logical explanations are available for phenomena established empirically."—A. G. Norman, University of Michigan, Dept. of Botany, in recent address before North Central Weed Control Conference.

Dutch Elm Disease Landed Innocently in '20's

Dutch elm disease, which has all but wiped out most trees of this species in many an eastern city, was introduced in the United States very innocently in the 1920's when a furniture manufacturer imported a dozen carloads of Carpathian elm stumps from Europe for the purpose of making furniture veneer.

This unwitting act of disease introduction started a chain of elm tree damage of such magnitude that plant pathologists specializing in trees have all but despaired of ever controlling it.

An 84-year-old retired furniture maker of Grand Rapids, Mich., Bernard Warren, has stated that he is the one who imported the stumps and got the cycle under way. He says he regrets the incident, but adds that "the whole thing was done innocently."

In looking back on the event, Mr. Warren opines, "If I had it to do over again, I'd leave the darn stuff over there. I'm not a bit proud of it."

No one can blame Mr. Warren for an act of business which appeared to be perfectly in order, and indeed was in accord with the standards of that time. Federal inspectors were not waiting at points of entry in those days to catch any plant that might be a carrier of potentially dangerous insects or plant diseases as they are today. Mr. Warren's successors today would no doubt have had to go through a considerable amount of red tape to get those elm stumps into the country.

Incidents of this nature give cause to reflect the potential damage that could be done through enemy action if well-trained agents were to bring into the U.S. some of the foreign pests that might well get a big start in agricultural crops before being detected.

The fact that our borders are being guarded against introduction of both insects and diseases is significant. Mr. Warren, some 30 years or more after his unintentional introduction says he's "not proud" of the results.

VIEWPOINT

Seen Along the Roadside

By J. M. ELEAZER, Information Specialist
Clemson Agricultural College

"Plant food is a lot cheaper than clearing new land for grass!" Thus spoke Clemson's Hugh Woodle at a grassland field day in York, S.C.

And, as he spoke, the hundred or so farmers in attendance were standing in lush grazing shoetop high on Dave Cameron's farm. Nor was that just a pet patch of grazing he had there. Acres and acres, over rolling hills it extended. A large herd of cattle had eaten their fill and were lying in the shade, for it was a warm day. He practices rotation grazing, and never hurts his grass.

Make every acre count, was Hugh's advice. Rather than clear up new land and extend the acres of poorly fed grazing, pour the plant food to what you have, and you'll have more and better grass was what he meant.

Mr. Cameron feeds his grass, and he has it in abundance all the time. He has 22 irrigation ponds that reach all of his fields. But that highly fertilized grass, used in a rotation on good land, stands drouth so well he doesn't have to use his irrigation much on it. On truck crops is where it is mostly used, and abundant harvest of quality products are assured.

Hugh brought out that although we are fertilizing pastures much heavier than we used to, we haven't reached the limits of its economic use yet. Heavy applications not only produce more grass that stands drouths better, but the grass is richer, has "more suction to it," as one man put it.

This is borne out in chemical analyses. For instance, poorly fertilized Coastal Bermuda grass hay will often analyze as low as 6 or 7% protein, while that highly fertilized right by it not only makes a lot more tonnage but analyzes as high as 14 to 16% protein. And, when you get a big production of rich forage like that, properly managed, you are ready to make a go with cattle.

Croplife's Home Office

Croplife

BPA — *Member of Business Publications Audit*

NBP — *Member of National Business Publications*

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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Editor

DONALD NETH
Managing Editor

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MEETING MEMOS

June 18-20—Pilot Plant Demonstration of Developments in Fertilizer Technology, Tennessee Valley Authority, Wilson Dam Laboratories, Sheffield, Ala.

Aug. 28-31—Soil Conservation Society of America, Annual Convention, Asilomar, Cal.

EDITOR'S NOTE—The listings above are appearing in this column for the first time this week.

May 13-15—Carolinas-Virginia Pesticide Formulators Assn., Third Annual Spring Convention, Cavalier Hotel, Virginia Beach, Va., W. R. Peele, Raleigh, N.C., Secretary-Treasurer.

May 14—Tour of Pacific Northwest Plant Food Assn. Farm Demonstration Project at Hillsboro, Ore.

May 17-18—School for Chemical Analysts in Industry and State Laboratories, Purdue University, Lafayette, Ind. Sponsored by National Plant Food Institute.

May 19-21—Florida Seedsmen's Assn., Roney Plaza Hotel, Miami Beach, Fla.

May 20-21—National Cottonseed Products Assn., 61st Annual Convention, Shoreham Hotel, Washington, D.C.

May 20-22—Chemical Specialties Manufacturers Assn., Drake Hotel, Chicago.

June 6-8—Manufacturing Chemists Assn., Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W.Va.

June 9-12—National Plant Food Institute, annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 17-19—Fifteenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Dinkler-Tutwiler Hotel, Birmingham, Ala., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.

June 23-26—American Society of Agricultural Engineers, Golden Anniversary meeting, Michigan State University, East Lansing, Mich.

June 26-28—Eighth Annual Fertilizer Conference of the Pacific Northwest, Benson Hotel, Portland, Ore. B. R. Bertramson, Washington State College, Pullman, Wash., chairman.

June 26-28—Pacific Branch, Entomological Society of America, 41st Annual Meeting, Multnomah Hotel, Portland, Ore., H. H. Keifer, 1112 Swanston Drive, Sacramento 14, Cal., Secretary-Treasurer.

July 4-5—Alabama Seedsmen's Assn., Battle House, Mobile, Ala.

July 10-14—Plant Food Producers of Eastern Canada, Manoir Richelieu, Murray Bay, Quebec.

July 17-19—Southwestern Fertilizer Conference and Grade Hearing, Galvaz Hotel, Galveston, Texas.

Aug. 13-14—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Secretary.

Aug. 14—Connecticut Agricultural Experiment Station Field Day, Mt. Carmel, Conn. Dr. James G. Horsfall, New Haven, director.

Sept. 5-6—Great Lakes States Anhydrous Ammonia Meeting, Michigan State University, East Lansing, Mich.

Sept. 8-15—International Congress of Crop Protection, Hamburg, Germany.

Oct. 2-4—Eleventh annual Beltwide Cotton Mechanization Conference, Shreveport, La.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco. Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting. Peabody Hotel, Memphis, Tenn.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Hercules Net Gains In First Quarter

WILMINGTON—Hercules Powder Co. recently reported for the three months ended March 31, 1957, earnings on its common stock of 48¢ a share for the first quarter of 1957. This compares with 55¢ a share for the first quarter of 1956. Net sales and operating revenues for the quarter were $60,867,639, compared with $57,362,562 for the first quarter of 1956.

Murray Smith

HEADS SAFETY GROUP—Murray Smith, works manager, Canadian Industries Ltd., agricultural chemicals division, Chatham, Ontario, was elected president of the Industrial Accident Prevention Associations during its annual convention in the Royal York Hotel, Toronto, recently.

NO RYEGRASS COMMISSION

PORTLAND, ORE.—Oregon ryegrass growers recently failed to vote for creation of a commodity commission, reports the Oregon Department of Agriculture. Only 62.9% affirmative votes were cast out of a required two thirds majority. Ballots were sent 1,429 growers. Of the 649 growers voting, some 408 supported the proposed commission.

TOO MUCH CLOVER

MADRAS, ORE.—An excessive growth of ladino clover in grass fields in Jefferson County, Oregon this spring is presenting a difficult problem for seed farmers, according to Amos Bierly, county extension agent. The rapid clover growth is choking down the seed crop for merion blue grass, fescue, and other varieties, Mr. Bierly said.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $10 per column inch.

All Want Ads cash with order.

HELP WANTED

ESTABLISHED PLANT FOOD COMPANY requires salesmen for Iowa, Illinois and Missouri. Prefer experienced salesmen but trainees considered. Address Ad No. 2637, Croplife, Minneapolis 1, Minn.

PRODUCTION FOREMAN OR MILL SUPERINTENDENT for large New York feed processing firm. Excellent opportunity for man with feed background and initiative. Give full details in first letter. Address Ad No. 2508, Croplife, Suite 3214, 551 Fifth Ave., New York 17, N. Y.

SITUATIONS WANTED

12 YEARS' EXPERIENCE IN FERTILIZER and farm chemical field with one company as office manager, telephone salesman, order expeditor and assistant purchasing agent, desires to locate in Tampa, Florida, area. 34 years old with family. References available. Address Ad No. 2671, Croplife, Minneapolis 1, Minn.

MACHINERY FOR SALE

TEN—NEW WORTHINGTON LIQUID FERTILIZER pumps, 100 gpm., stainless steel shaft and impeller with 4.6 H.P. Wisconsin engine, $225 each. Standard Steel Mfg. Co., Inc., Indianapolis 18, Ind.

ONE CORKEN ANHYDROUS AMMONIA Compressor No. 91-L-107, complete with hose and fittings to unload ammonia from railroad tank cars to storage or nurse tanks. This outfit is almost brand new. Will sell reasonable. Farmers Cotton Oil Co., Wilson, N. C.

ARIZONA CIRCULAR

TUCSON, ARIZ.—The University of Arizona has published a new revision of the circular, "Cotton Insect Control," by Dr. J. N. Roney, extension entomologist. The revision includes a section devoted to the application of insecticides by airplane and a section which explains a label from a toxic insecticide.

INDEX OF ADVERTISERS

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

A Complete Sales Medium...

CROPLIFE is the only *complete sales medium* directed to the agricultural chemical industry. It is a *weekly* newspaper appealing to all segments of the industry. One of its editorial functions is to knit more closely together all those industry elements—manufacturers, agents, retailers, the educational echelon and farm advisor groups. It does this by:

- Keeping all segments informed of all industry news.
- Providing feature material designed to help manufacturers and mixers to do a better job, to help dealers sell and to help farm advisors and educational people make sound recommendations.
- Keeping all industry alert to current and proposed government action.
- Providing a channel through which news and advertising can reach all segments of the industry.

This new approach to business journalism for the agricultural chemical industry is being made by a company with 80 years of experience in newsgathering and publishing and one which has built an unchallenged reputation for reliability and service. Advertising of your products and services in Croplife will mean *richer sales fields* for you!

National Coverage Weekly . . .

Croplife's carefully controlled circulation provides national weekly coverage of manufacturers, formulators, mixers and ingredient suppliers.

Plus Regional Coverage by Crop-areas . . .

In addition, a unique regional circulation plan provides advertisers with a selective crop-area coverage of wholesale and retail dealers and farm advisory personnel.

In addition to its national coverage, Croplife offers a selective regional circulation plan in these crop areas

WRITE—WIRE—PHONE our nearest office for a complete analysis of Croplife's important role in your advertising program.

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